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CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1909-1910

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Rumford
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UNIVERSITY OF NEW HAMPSHIRE

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CALENDAR

1909

JULY

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COLLEGE CALENDAR.

1909.

Sept. 10–14. Examinations for admission begin Friday at 9 a. m.
Sept. 15. Registration, Wednesday. First semester begins.
Oct. 13. Stated meeting of Trustees.
Nov. 24. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

Nov. 30. College opens Tuesday at 8 a. m.
Dec. 22. College closes Wednesday night.

1910.

CHRISTMAS VACATION.

Jan. 4. College opens Tuesday at 8 a. m.
Jan. 12. Stated meeting of Trustees.
Jan. 31—Feb. 4. Mid-year examinations.

WINTER VACATION.

Feb. 9. Registration, Wednesday. Second semester begins.
April 13. Stated meeting of Trustees.
April College closes Wednesday night preceding Fast Day.

SPRING VACATION.

April College opens Tuesday following Fast Day at 8 a. m.
June 7. Senior examinations completed 4 p. m.
June 8–13. Final examinations.
June 12. Baccalaureate sermon, Sunday at 10.45 a. m.
June 13. Prize Drill, 8 p. m., in the Armory.
June 14. Class Day. Stated meeting of Trustees.
June 15. Commencement Day. Senior Promenade at 8 p. m.

SUMMER VACATION.

Sept. 9–13. Examinations for admission begin Friday at 8.30 a. m.
Sept. 14. Registration, Wednesday. First semester begins.
Oct. 12. Stated meeting of Trustees.
Nov. 23. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

Nov. 29. College opens Tuesday at 8 a. m.
Dec. 23. College closes Friday night.

1911.

CHRISTMAS VACATION.

Jan. 5. College opens Thursday at 8 a. m.
Jan. 11. Stated meeting of Trustees.
Jan. 30—Feb. 3. Mid-year examinations.

WINTER VACATION.

Feb. 8. Registration, Wednesday. Second semester begins.

BOARD OF TRUSTEES.

His Excellency, Gov. HENRY B. QUINBY, A. M., M. D., LL. D., *ex officio.*

Pres. WILLIAM D. GIBBS, D. Sc., *ex officio.*

Hon. WARREN BROWN, Hampton Falls, *President.*
Sept. 21, 1887, to June 14, 1910.

Hon. LUCIEN THOMPSON, Durham, *Secretary.*
July 28, 1892, to June 14, 1910.

Hon. JOHN G. TALLANT, West Concord.
July 28, 1892, to July 20, 1912.

WALTER DREW, Colebrook.
Aug. 30, 1902, to Aug. 30, 1911.

Hon. RICHARD M. SCAMMON, Stratham.
Aug. 30, 1899, to Aug. 30, 1911.

Hon. ROSECRANS W. PILLSBURY, Londonderry.
Oct. 7, 1897, to Oct. 7, 1912.

Hon. NAHUM J. BACHELDER, M. S., A. M., East Andover.
Jan. 5, 1905, to Jan. 5, 1911.

Hon. EDWARD H. WASON, B. S., Nashua, *Alumni Trustee.*
July 1, 1907, to July 1, 1910.

GEORGE W. CURRIER, M. D., Nashua.
Oct. 9, 1906, to June 14, 1910.

Hon. GEORGE H. BINGHAM, A. B., LL. B., Manchester.
Dec. 2, 1908, to Dec. 2, 1911.

RICHARD W. SULLOWAY, A. B., Franklin.
Oct. 9, 1909, to Oct. 9, 1912.

OFFICERS OF INSTRUCTION AND ADMINISTRATION.

WILLIAM D. GIBBS, D. Sc., *President of the College.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics.*

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy.*

CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry.*

FREDERICK W. TAYLOR, B. Sc. (Agr.), *Professor of Agronomy.*

E. DWIGHT SANDERSON, B. S., B. S. (Agr.), *Professor of Zoology and Entomology and Director of the Experiment Station.*

ARTHUR F. NESBIT, S. B., A. M., *Professor of Physics.*

RICHARD WHORISKEY, Jr., A. B., *Professor of Modern Languages.*

FREDERIC W. PUTNAM, B. S., *Professor of Drawing and Design.*

CHARLES BROOKS, PH. D., *Professor of Botany.*
CHARLES E. HEWITT, B. S., M. M. E., *Professor of Electrical Engineering.*
BETHEL S. PICKETT, M. S., *Professor of Horticulture.*
ERNEST R. GROVES, A. B., B. D., *Professor of English and Philosophy and Secretary of the Faculty.*
FORREST E. CARDULLO, M. E., *Professor of Mechanical Engineering.*
G. W. EDGERLY, Second Lieutenant, Second U. S. Infantry, *Professor of Military Science and Tactics.*
FRED RASMUSSEN, B. S. A., *Professor of Dairying.*
T. R. ARKELL, B. S. A., *Associate Professor of Animal Husbandry.*
CHARLES JAMES, F. I. C., *Assistant Professor of Inorganic Chemistry.*
A. M. BUCK, M. E., *Assistant Professor of Electrical Engineering.*
JOHN C. McNUTT, B. S. (Agr.), *Assistant Professor of Animal Husbandry.*
C. FLOYD JACKSON, B. S., M. A., *Assistant Professor of Zoölogy.*
F. C. MOORE, A. B., *Assistant Professor of Mathematics.*
FRANK R. BROWN, B. S., *Instructor in Machine Work.*
DAVID L. RANDALL, PH. D., *Instructor in Chemistry.*
HARRY E. INGHAM, B. S., *Instructor in Wood Work.*
THOMAS J. LATON, B. S., *Instructor in Drawing.*
EVAN J. DAVID, A. B., *Instructor in Rhetoric and Literary Criticism.*
ALBAN STEWART, A. M., *Instructor in Botany.*
DAVID LUMSDEN, *Assistant in Floriculture and Foreman of Grounds.*
T. G. BUNTING, B. S. A., *Assistant in Vegetable Gardening.*
TELESPHORE TAISNE, B. A., B. D., *Assistant in Modern Languages.*
W. L. SLATE, JR., B. S. (Agr.), *Assistant in Agronomy.*
LESTER A. PRATT, B. S., *Assistant in Chemistry.*
OSCAR W. STRAW, *Engineer and Curator of Buildings.*
CHARLES W. STONE, A. M., *College Farmer.*
MABEL E. TOWNSEND, A. B., *Registrar.*
MABEL HODGKINS, A. B., B. S., *Librarian.*
CHARLOTTE A. THOMPSON, *Assistant Librarian.*
NELLIE F. WHITEHEAD, *Purchasing Agent.*
MIRIAM L. HOBBS, *Bookkeeper.*
ESTHER A. PERKINS, *Stenographer.*
MARCIA SANDERS, *Matron of Smith Hall.*

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

Hon. JOHN G. TALLANT, *Chairman*,	Pembroke
Hon. WARREN BROWN,	Hampton Falls
Hon. N. J. BACHELDER, A. M., M. S.,	East Andover
Hon. E. H. WASON, B. S.,	Nashua
Pres. WILLIAM D. GIBBS, D. Sc., *ex officio*,	Durham

THE STATION STAFF.

E. DWIGHT SANDERSON, B. S., *Director and Entomologist.*
FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agronomist.*
CHARLES BROOKS, Ph. D., *Botanist.*
FRED RASMUSSEN, B. S. A., *Dairyman.*
B. S. PICKETT, M. S., *Horticulturist.*
BERT E. CURRY, M. S., *Associate Chemist.*
T. R. ARKELL, B. S. A., *Animal Husbandman.*
Assistant Horticulturist.
W. C. O'KANE, M. S., *Assistant Entomologist.*
J. C. McNUTT, B. S., *Assistant Animal Husbandman.*
DAVID LUMSDEN, *Assistant in Floriculture.*
CHARLES W. STONE, A. M., *Farmer.*
T. G. BUNTING, B. S. A., *Assistant in Vegetable Gardening.*
E. H. THOMPSON, B. S. A., *Office of Farm Management, U. S. Department of Agriculture, in coöperation on Farm Surveys.*
ALBAN STEWART, A. M., *Assistant Botanist.*
ESTHER LOUISE ADAMS, B. S., *Librarian.*
NELLIE F. WHITEHEAD, *Purchasing Agent.*
MIRIAM L. HOBBS, *Bookkeeper.*
MABEL H. MEHAFFEY, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appro-

priated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state . . . shall be called and designated . . . The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands

by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10 of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the buildings. Accordingly, in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*. the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

SITUATION.

Durham, the present site of the college, is on the Western Division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover. being five miles from the latter place.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and offers ample opportunity for religious observance.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
   - *a*. Four Year Course.
   - *b*. Two Year Course.
   - *c*. Ten Week Course.

2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. Arts and Science Course.

The college is a part of the public school system of the state. It stands in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION AND FEES.

Tuition is $60 a year; fees, which include all charges commonly considered extras, except those for breakage and damage to college property, are $20 a year. They are payable in advance in two equal instalments, one on the first day of each semester.

SCHOLARSHIPS.

Scholarships are awarded each semester at the discretion of the faculty to resident students of New Hampshire. They may be forfeited at any time for misconduct and will not be awarded except by special permission of the president, to students in the four year courses who have failed to secure an average grade of sixty or over in the previous semester. They are given for the purpose of aiding deserving students and will be withdrawn from those who use intoxicating liquor or tobacco.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying tuition, $60, fees, $20, cash, $20,—total, $100. These are assigned under the following conditions:

They are to be given to young men taking the agricultural course.

Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

They will be reserved for their respective towns until August 1 of each year. Those not taken by students from Cheshire County, and those in excess of the number of towns, will then be assigned to agricultural students from other parts of the state, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholar-

ship is to pay tuition, $60. Senatorial scholarships not filled may be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Grange Scholarships.—Each subordinate and Pomona Grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four year or two year courses in the college. Each scholarship is to pay the tuition of $60. The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of these scholarships need not be members of the grange.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

By vote of the faculty, these scholarships will be forfeited by failure to obtain an average grade of 75 per cent. for any semester. These scholarships yield $400 annually or one hundred dollars to each holder. Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time. They are not restricted to residents of New Hampshire.

PRIZES.

Bailey Prize.—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

Chase-Davis Memorial Medals.—The Glee Club has offered to furnish yearly a gold medal to the senior who has won his N. H. and stands highest in his studies, and a silver medal to the senior who has won his N. H. and stands second in his studies, the medals to be known as the Chase-Davis Memorial medals.

COLLEGE AID TO STUDENTS.

Students obtain considerable financial aid by janitorships, and work on the farm and in the greenhouse. They also find employment with the power and service department of the college and with the experiment station.

Students may purchase at cost all books, drawing instruments, materials, etc., at the college book-store in Thompson Hall.

ESTIMATE OF FRESHMAN EXPENSES.

Tuition,	Free	$60.00
Text-books,	$12.00 to	20.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	12.00 to	25.00
Fees,	20.00 to	20.00
Room rent, including heat and light,	30.00 to	60.00
Board, $2.75 to $3.50 per week, for thirty-six weeks,	99.00 to	126.50
Total,	$189.00	$327.50

This total does not include incidentals (such as traveling expenses, laundry, etc.).

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

The college has no rooms for men students. Rooms may be obtained either furnished or unfurnished, in buildings under private control, and are for the most part provided with heating apparatus, electric lights and baths.

Women students, unless living at home, are required to room in Smith Hall, the woman's dormitory.

Table board is $3.75 a week and prices for rooms range from $1.25 to $2.00 a week. Rooms will be assigned to old students in order of their seniority, and to new students according to their date of application. Applications for rooms should be made to the registrar.

REGISTRATION.

Every undergraduate student who desires to attend the college during a given semester is required to register at the registrar's office before 4 p. m. of the first day of such semester. Every former student registered after the first day of any

semester will be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ELECTION OF STUDIES.

On or before the Saturday before the last in each semester, every student is required to notify the registrar, in writing, of his elections for the semester following.

Every student who fails to fill out his elective slip on or before the date mentioned is required to pay a fine of one dollar before he can be registered for the studies of the next semester, unless he has previously obtained from the president a written excuse for delay.

Every student who, having made his elections, desires to change, is required to file with the registrar a written statement of the changes desired and his reasons therefor.

No student will be permitted to make changes in courses elected by him after one week from the time of his registration in each semester, except by vote of the faculty and the payment of one dollar.

ATTENDANCE AND EXCUSES.

Every male student, unless a member of the senior or junior class, or unless physically unfit, is required to attend military drill.

Every student is required to attend chapel exercises. A student accumulating more than six unexcused absences from chapel during any semester will be placed on probation.

Attendance upon class work is, in general, under the control of the heads of departments concerned. However, excuses for absence for one day or more, may be obtained of the dean in advance, and should be passed at once to the registrar by the student. Excuses for absence for less than one day should be obtained of the instructors concerned. If excuses are for an indefinite time, the student must report to the registrar within twenty-four hours after his return to his studies, if he wishes to receive credit for his excuses.

In no case will such excuse relieve the student from class work.

Any head of a department may, without faculty action, exclude from examination any student who has been absent from twenty per cent. of the exercises of any class under his charge.

All classes begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

AMOUNT OF WORK.

No student will be permitted to carry less than sixteen or more than twenty-two credit hours per week of classroom work or its equivalent, without the consent of the faculty.

REMOVAL OF DEFICIENCIES BY EXAMINATION.

A student conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of each semester, and upon the last Saturday of each semester. A student who takes a deficiency examination upon an entrance subject at any other time must pay the college one dollar for each examination upon each subject.

Every student who has any entrance condition outstanding at the beginning of the third year of residence at the college or more than one at the beginning of the second year will not be allowed to register until such conditions have been removed.

Dates for re-examination in conditioned subjects are fixed at the discretion of the instructor. No requests for examinations will be granted on less than two weeks' notice except on the regular dates for examinations in entrance deficiencies.

REQUIREMENTS
FOR ADMISSION TO FOUR YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of fifteen units.

The equivalent of work done in an approved high school for one year of five recitations a week will be accepted for one unit. However, the work of one year of four recitations a week may be accepted for one unit, provided the work is done in the last two years of a preparatory course.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
" B (American History or Ancient History)	1	unit
" C..(Algebra and Plane Geometry)	2½	units

(Required) Group D.....(Physics and Biology)	2	units
" E.....(French or German)	2	units
	11½	units
(Elective) Groups B to F inclusive.....	3½	units
Total	15	units

ARTS AND SCIENCE COURSE.

Candidates for admission who intend to take the Arts and Science Course must offer ten and one-half units from required subjects and four and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
" B (American History and Ancient History)	2	units
" C..(Algebra and Plane Geometry)	2½	units
" E.....(French or German)	2	units
	10½	units
(Elective) Groups B to F inclusive.....	4½	units
Total	15	units

ENGINEERING COURSES.

Candidates for admission who intend to take the Engineering Courses must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement. For the present an elective half unit will be accepted in place of Trigonometry. Students offering Trigonometry for admission will be given an equivalent amount of advanced work:

(Required) Group A (English)	4	units
" B (American History or Ancient History)	1	unit
" C (Algebra, Plane and Solid Geometry and Plane Trigonometry)	3½	units
" D ..... (Physics)	1	unit
" E ..... (French or German)	2	units
	11½	units
(Elective) Groups B to F inclusive.....	3½	units
Total	15	units

GROUP A, ENGLISH.

Preparation in English has two main objects: (1) command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence and appreciation.

The first object requires instruction in grammar and composition. The second object is sought by means of two lists of books, headed respectively Reading and Study, from which may be framed a progressive course in literature covering four years. A candidate will not be accepted in English whose work is notably deficient in point of spelling, punctuation, phraseology or division into paragraphs.

Reading.—The aim of this course is to foster in the student the habit of intelligent reading, and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of that he reads.

Study.—This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. For this close reading are provided a play, a group of poems, an oration and an essay.

The first part of the examination will be upon the books prescribed for reading, and the form of the examination will usually be the writing of short paragraphs on several topics which the candidate may choose out of a considerable number. It may include also questions upon grammar and the simpler principles of rhetoric.

The second part of the examination will include composition and those books comprised in the list headed Study. The test in composition will consist of one or more essays, developing a theme through several paragraphs; the subjects will be drawn from the books prescribed for Study, from the candidate's other studies, and from his personal knowledge and experiences quite apart from reading.

The books for reading in 1910 and 1911 are:

Group I (two to be selected).

Shakespeare's As You Like It, Henry the Fifth, Julius Caesar, The Merchant of Venice, Twelfth Night.

Group II (one to be selected).

Bacon's Essays; Bunyan's Pilgrim's Progress, Part I; The Sir

Roger de Coverley Papers in the Spectator; Franklin's Autobiography.

Group III (one to be selected).

Chaucer's Prologue; Spenser's Faerie Queene (selections); Pope's Rape of the Lock; Goldsmith's Deserted Village; Palgrave's Golden Treasury (First Series) Books II and III, with special attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV (two to be selected).

Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Scott's Quentin Durward; Hawthorne's House of the Seven Gables; Thackeray's Henry Esmond; Mrs. Gaskell's Cranford; Dickens' Tale of Two Cities; George Eliot's Silas Marner; Blackmore's Lorna Doone.

Group V (two to be selected).

Irving's Sketch Book; Lamb's Essays of Elia; De Quincey's Joan of Arc and The English Mail Coach; Carlyle's Heroes and Hero Worship; Emerson's Essays (selected); Ruskin's Sesame and Lilies.

Group VI (two to be selected).

Coleridge's Ancient Mariner; Scott's Lady of the Lake; Byron's Mazeppa and The Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with special attention to Wordsworth, Keats and Shelley; Macaulay's Lays of Ancient Rome; Poe's Poems; Lowell's Vision of Sir Launfal; Arnold's Sohrab and Rustum; Longfellow's Courtship of Miles Standish; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Browning's Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, and Pheidippides.

The books for study in 1910 and 1911 are:

Shakespeare's Macbeth; Milton's Lycidas, Comus, L'Allegro, and Il Penseroso; Burke's Speech on Conciliation with America, or both Washington's Farewell Address and Webster's First Bunker Hill Oration; Macaulay's Life of Johnson or Carlyle's Essay on Burns.

GROUP B, HISTORY.

Although there are excellent text books in history, adequate preparation cannot be obtained by text book work only. Some collateral work is necessary, whatever text book is used, and with certain text books a large amount is necessary. The de-

tails of the preparatory work in history are fully stated in "A History Syllabus for Secondary Schools," by the New England History Teachers' Association. Boston, D. C. Heath & Co., 1904.

American History and Civics.

The work in Civics must include at least a study of the Constitution of the United States. Representative text books are Channing's Students' History, Hart's Essentials of American History, and Montgomery's Students' History. —1 unit.

Ancient History (Grecian and Roman).

Representative text books are Morey's Greek History, Myers' History of Greece, Allen's Roman People, Morey's Roman History, Myers' Rome, West's Ancient World, and Wolfson's Essentials of Ancient History. —1 unit

English History.

Representative text books are Larned's History of England, Montgomery's English History, and Walker's Essentials of English History. —1 unit.

Mediaeval and Modern History.

Representative text books are Harding's Essentials of Mediæval and Modern History and Myers' Mediæval and Modern History. —1 unit.

GROUP C, MATHEMATICS.

Algebra.

Through quadratic equations, including radicals and fractional and negative exponents, binomial theorem and progressions,—five periods per week for one and one-half years. —1½ units.

Plane Geometry.

The equivalent of Wells' presentation. —1 unit.

Solid Geometry.

The equivalent of Wells' presentation. —½ unit.

Plane Trigonometry.

The equivalent of Wells' presentation. —½ unit.

GROUP D, SCIENCE.

Accompanying the certificates for each of the sciences the student MUST present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

Biology.

Students in the Agricultural Course must present either.

A. Zoölogy.

Kellogg's Elementary Zoölogy, Linville and Kelly's Text Book in General Zoölogy. Jordan, Kellogg and Heath's Animals, Needham's Lessons in Zoölogy, Coulton's Zoölogy, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work. —½ unit.

and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work. —½ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying at least four periods per week for one year, of which at least one is devoted to laboratory work. —1 unit.

Chemistry.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Hessler & Smith's Essentials. McPherson & Henderson's Elementary Study or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice. —1 unit.

Geology.

Leconte's Compend or an approved equivalent. —½ unit.

Physics.

The preparation required for entrance in Physics shall be an equivalent of five exercises a week for one year, of which at least two are devoted to laboratory work. —1 unit.

GROUP E, MODERN LANGUAGES.

French.

Two years are required for preparation in French. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, (3) abundant translation of simple English prose into idiomatic French, (4) reading of from 100 to 175 pages of French prose, (5) writing French from dictation. Work of the second year should include (1) the reading of from 250 to 400 pages of easy modern prose, (2) constant practice in translating from English into French varia-

tions of the text read, (3) frequent paraphrases of the text read, (4) dictation. —2 units.

German.

Two years are required for preparation in German. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, such as the inflection of the articles, the common nouns, adjectives, pronouns and strong and weak verbs, upon the uses of the prepositions, the modal auxiliaries and the rules of syntax and word order, (3) writing from dictation, (4) the reading of from 75 to 100 pages of prose, (5) translation from English into German. Work of the second year should include (1) the reading of from 150 to 200 pages of prose, (2) constant practice in translating from English into German variations of the text read, (3) dictation, (4) continued drill upon the rudiments of grammar, (5) frequent paraphrases of the text read. —2 units.

GROUP F, ANCIENT LANGUAGES.

Students entering from approved schools may receive credit in their certificates for the following work in Greek or Latin:

Greek.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose. Two years' work. —2 units.

Latin.

Grammar and four books of Caesar. Two years' work. —2 units.

Vergil, six books.
Cicero, six orations. —2 units.

CERTIFICATES.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements in full; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes any exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be ac-

cepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Suitable credit may be given on entrance requirements for properly certified high school work in drawing, shop-work and agriculture; also, for an extra year's work in any required or elective subject, provided after careful examination it is found that this work is additional to that regularly required.

Certificates must be made out on a blank furnished by the college, and should be mailed to the dean at the close of the school year.

Complete Certificates.

The signature of the principal is to be affixed to the general certificate, and to that of each department in which the work of the candidate is certified.

Partial Certificates.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full except signature, the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, beginning Friday of the week preceding the opening of the college year. Candidates will present themselves with their credentials at the registrar's office on the first day of the examinations.

SCHEDULE FOR SEPTEMBER ENTRANCE EXAMINATIONS.

Friday, September 9.

Mediæval and Modern History	8.30—10.30 A. M.
Algebra	10.30—12.30 A. M.
English	1.30— 3.30 P. M.
Plane Geometry	3.30— 5.30 P. M.

Saturday, September 10.

English History	8.30—10.30 A. M.
Physics	10.30—12.30 A. M.
Latin, elementary	1.30— 3.30 P. M.
Latin, advanced	3.30— 5.30 P. M.

Monday, September 12.

Chemistry	8.30—10.30 A. M.
American History	10.30—12.30 A. M.
French	1.30— 3.30 P. M.
Solid Geometry	3.30— 5.30 P. M.

Tuesday, September 13.

Ancient History	8.30—10.30 A. M.
Plane Trigonometry	10.30—12.30 A. M.
German	1.30— 3.30 P. M.
Botany	3.30— 5.30 P. M.

Wednesday, September 14.

Geology	8.30—10.30 A. M.
Zoölogy	10.30—12.30 A. M.
Greek, elementary	1.30— 3.30 P. M.

REQUIREMENTS FOR GRADUATION FROM FOUR YEAR COURSES.

Those who complete a regular four year course will be recommended for the degree of Bachelor of Science.

No course will be accepted as an equivalent of a regular four year course which does not comply with all the following requirements:

1. The completion of all work common to the four year courses.

2. The completion of one hundred fifty-four credit hours.

3. The completion of all but ten or less credit hours in some one of the regular four year courses.

4. Approval by the faculty not earlier than June 1 preceding the year of graduation.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday.

All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies, is to be submitted to the president before the 15th day of December preceding graduation. The thesis is to be submitted to the head of the department concerned not later than the second Tuesday preceding commencement day. The thesis is to be completed in typewritten and bound form and be in the hands of the department concerned before the Tuesday preceding commencement day. The thesis is to be typewritten or printed upon standard thesis paper eight and one-half by eleven inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy is to be filed and left with the college librarian.

BUILDINGS.

Thompson Hall is the main administrative building and contains the offices of the president, the dean, the registrar and the purchasing agent. Here also are located the Departments of History and Political Science, Drawing and Machine Design, Modern Languages, Mathematics and Zoölogy.

Conant Hall is given over wholly to the Departments of Chemistry, Physics and Electrical Engineering.

Morrill Hall contains the Experiment Station Library of over one thousand volumes, the office of the director of the Experiment Station, and the laboratories, lecture rooms and offices of the Departments of Agronomy, Animal Husbandry and Horticulture.

Nesmith Hall is occupied by the Chemical, Botanical and Dairy Departments of the Experiment Station and contains the laboratory and lecture room of the Botanical Department of the College.

The Mechanical Engineering Building contains a wood shop, a machine shop, a forge shop, a foundry and the laboratories of the Mechanical Engineering Department.

In the Armory are the lecture rooms and offices of the Military Department, the rooms of the College Club and a large drill hall or gymnasium.

The college has also a large modern dairy barn, several smaller barns for sheep, horses, etc., a range of greenhouses especially planned for carrying on up-to-date work in greenhouse

management, and a dairy building. There is in process of construction a new dairy building, which will be arranged and equipped in the most up-to-date and sanitary manner. It will contain a commercial creamery, with separator room, churning room and cold storage room; laboratories for giving instruction in milk testing, milk inspection, farm butter-making and cheese making and bacteriology; a reading and exhibition room; a class room and offices.

Smith Hall, the woman's dormitory, was made possible by the generosity of Mrs. Shirley Onderdonk, of Durham, who gave sixteen thousand dollars as a memorial to her mother, Mrs. Alice Hamilton Smith. The remainder of the cost, $10,000, was provided by the state. The building furnishes accommodations for thirty-two students.

In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham Public Library and the college are all shelved in one building and form the Hamilton Smith Public Library. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 24,000 bound volumes and 7,000 pamphlets.

Aside from the main library, each department has its working library of the more technical books and those which are of special use in the laboratories and work-shops.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a new compacting machine, chemical and torsion balances and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL HUSBANDRY.

For the various courses in animal husbandry an extensive use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Shorthorns. The college owns seven head of horses representing the draft type, and in order to become acquainted with the carriage or roadster types the students are taken to various stock farms where these types may be inspected and judged.

For the study of the different breeds of sheep and swine the experiment station flocks of pure bred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of Yorkshires are used.

In the agricultural building a large room is fitted up for the judging of live stock; instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of the different breeds of live stock. The herd books of the most prominent breeds are used for the purpose of familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

BOTANY.

The botanical laboratory is supplied with a good herbarium, charts, microscopes and the other necessary appliances.

CHEMISTRY.

The several chemical laboratories are modern in design and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

DAIRYING.

All available space in the dairy building is filled with various forms of cream separators, churns, testing apparatus and other

dairy appliances. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

DRAWING.

For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of working models and machines for machine drawing and various machines in other departments are available for this work.

ELECTRICAL ENGINEERING.

The electrical engineering laboratories consist of two dynamo rooms, a transformer room, a photometer room, a storage battery room and a laboratory for the calibration of measuring instruments, etc. In addition to the regular laboratories, the department has available for experimental work the large alternator of the power and service department, also 75,000 watts from the Rockingham County Power & Light Company. In the main dynamo room there is a large distributing switchboard on which are mounted instruments, switches and plugging devices so arranged that it is possible to connect the various laboratories, also each lecture room, and convey thereto direct current and single, two phase and three phase alternating currents of different voltages and periodicities. The general equipment of the department includes various dynamos and motors for both direct and alternating currents, several transformers, the necessary measuring instruments, storage batteries, etc., designed and arranged so as to be adapted for the needs of special laboratory work.

FORESTRY.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

HORTICULTURE.

The lecture room is fitted up with a stereopticon lantern and the collection of lantern slides is being continually enlarged.

The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. A great many varieties of vegetables are grown in the experiment station trial ground, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department.

MECHANICAL ENGINEERING.

A 40 horse-power engine furnishes power for the shops and a large duplex pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. The pump, with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnish apparatus for an extensive series of hydraulic experiments. Among other apparatus are a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension compression and transverse tests; a 12 horse-power gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser; a Bristol pyrometer; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus.

PHYSICS.

The department has a collection of the usual apparatus for laboratory work and lecture-room illustration.

The physical laboratory contains apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens. In electricity and magnetism the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer and an assortment of ammeters and voltmeters for measuring direct and alternating currents and voltages.

SHOPWORK.

The wood shop is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes and a large pattern maker's lathe with molding and boring attachments.

The equipment of the machine shop consists of engine lathes, a speed-lathe, a vertical drill, a Flather planer, a universal milling machine with gear-cutting and spiral attachments; a shaper, a power hack saw; a tool grinder; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work.

In the forge shop are 18 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a small steam-engine.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

MUSEUM.

The museum had for a nucleus the collection made during the state geological survey. To this additions have been made from various sources. Specimens are being collected to illustrate the zoölogy of New Hampshire, and New Hampshire collectors and naturalists are invited to make the museum the permanent depository of their collections.

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely from September to December 1 and from April 1 to June, the former having special reference to the duties of the line.

The organization is a battalion of two companies, with a band,

officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgensen magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, within four minutes' walk of the college buildings, with firing points at 200, 300 and 500 yards. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills, and the new gymnasium or drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black cloth band on cuffs and collars of blouses, and blue caps, army regulation. Officers wear braid instead of cloth on collars, cuffs and on bottom and front of coat. The letters N. H. C. are embroidered in gold on each side of the blouse collar. The cost of such a uniform does not exceed $16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior and junior classes; all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations. Seniors and juniors who elect drill and are appointed cadet officers have their college fees remitted.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

FOUR YEAR COURSES.

AGRICULTURAL COURSE.

This course is designed for the general education and scientific training of students in the various economic branches of agriculture. The lecture and recitation work of the classroom is supplemented largely by practical exercises in the laboratories. Seminary courses are also given, especially for seniors and advanced students. The whole curriculum is so arranged that about one third of the studies may be termed cultural, one third, scientific, and one third, technical. During the junior and senior

years of this course the student has elective options on certain courses of study which enable him to specialize in animal husbandry, dairying or horticulture.

While the two-year course is intended to give the student as thorough training in the science and practical details of farm operations as the time will allow, it does not give the opportunity for a broad general foundation of pure and applied science that the four-year course affords; the latter course aims primarily to combine a college education with that of a technical vocation. Many of the graduates of the four-year course return to the farm for the purpose of putting into practice the knowledge and training of their college work, and many of them are becoming successful and prosperous citizens of the community; others who have no farms of their own accept salaried positions as superintendents or foremen on the dairy, fruit or truck farms of large owners; still others take positions as teachers of science and agriculture in our secondary and high schools or as assistants in our agricultural colleges and experiment stations.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analysis and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged

to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year.

ARTS AND SCIENCE COURSE.

In the Arts and Science Course those who wish a college education for its cultural value are given an academic training that especially prepares them for teaching in secondary schools, or for special work in graduate schools. By means of the group system of elective studies an opportunity is given to specialize in History, English, Mathematics, Physics, Chemistry, Modern Languages, Agriculture, Zoölogy, Botany, Drawing, Philosophy, Pedagogy and Biology.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The Arts and Science Course, with its electives, is specially prepared for women, the Courses in Agriculture and Chemistry afford opportunities for the study of the natural sciences, and the Engineering Courses offer exceptional advantages in mathematics and physics.

CHEMICAL ENGINEERING COURSE.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference, not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that

the laboratories are becoming crowded the number of students taking this course is limited to six in each class. These six are chosen at the close of the freshman year from those who have applied. Fitness to become successful chemists will alone determine the choice made.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize, not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence in the work and be intrusted with its more responsible positions.

MECHANICAL ENGINEERING COURSE.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

POST-GRADUATE AND SPECIAL COURSES.

The college offers opportunity for post-graduate study in Agriculture, Biology and Chemistry, and on the completion of satisfactory work advanced degrees will be given. Persons of mature years presenting satisfactory evidence of their ability to complete any desired course of study may be admitted as special students by vote of the faculty.

FOUR YEAR COURSES.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors. *Three exercises per week. 1st S.*

2. Soils and Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors.

Three exercises per week. 2d S.

3. Soil Management and Fertility.

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discussed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

4. Manures and Fertilizers.

A course of lectures, text book and seminary work on farm manures and commercial fertilizers. Elective for Agricultural Seniors. *Two exercises per week. 2d S.*

5. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

6. Agricultural History and Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors. First nine weeks. *Four exercises per week. 2d S.*

7. Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors. Last eight weeks. *Four exercises per week. 2d S.*

ANIMAL HUSBANDRY.

ASSOC. PROF. ARKELL, ASST. PROF. MCNUTT.

1. Types and Breeds of Live Stock.

A study of the different breeds of cattle, sheep, horses and swine in respect to their origin, history, development, characteristics and adaptability to different conditions of climate and soil. In the study of beef cattle, market conditions and requirements are discussed; in the study of dairy cattle, milk and butter production; and in the study of sheep, mutton and wool production and the raising of hot-house lambs. In the study of horses, besides the origin, history and development of the breeds, market classifications are defined; and in the study of swine, the influence of various feeds and of different methods of management as affecting types is discussed. One afternoon each week is devoted to judging the different breeds. For Agricultural Sophomores. *Three exercises per week. 1st S.*

2. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading, and practice in tracing pedigrees. Elective for Agricultural Seniors. *Two exercises per week. 2d S.*

3. Feeds and Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the

animal body, preservation of coarse fodders; a study of leading cereals and by-products; feeding standards. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2d S.

4. Veterinary Science.

Lectures and recitations upon the anatomy and physiology of the animal body; diseases and ailments; simple farm medicines and methods of administering; holding a post-mortem; infectious and contagious diseases affecting farm animals and methods of treatment; care of breeding animals with treatment of diseases and accidents incident to the parturient state. Elective for Agricultural Juniors. *Three exercises per week. 2d S.*

5. Poultry.

Lectures and recitations upon the different classes and breeds of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Juniors. *Two exercises per week. 1st S.*

6. Advanced Live Stock.

This course is designed especially for those students who have shown proficiency in the previous courses relating to live stock. Students are given an opportunity to perform original work in investigating special problems concerning the breeds and their management. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

7. Live Stock Management.

A study of the general management and care of horses, cattle, sheep and swine; fitting for market and exhibition; approved methods of stabling; sanitation; maintaining health and vigor in live stock. Elective for Agricultural Seniors or Juniors.

Three exercises per week. 1st S.

BOTANY.

PROF. BROOKS, MR. LEWIS.

1. General Botany. Prof. Brooks, Mr. Stewart.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 1st S.

2. General Botany.

This course continues the work on type forms begun in Course 1 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Open only to students who have completed Botany 1.

Three exercises per week. 2d S.

3. Plant Pathology.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

4. Mycology.

A study of representative groups of fungi; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Elective for Agricultural Juniors and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

5. Plant Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

6. Plant Histology.

A minute study of plant cells and plant tissues, starches, aleurones and other cell contents. Lectures and laboratory work. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

7. Advanced Botany.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses. *Three exercises per week. 1st S.*

8. Advanced Botany.

Continuation of Botany 7. *Three exercises per week. 2d S.*

9. Systematic Botany.

Lectures and laboratory work on the classification of plants with special reference to those of New England. Elective for Arts and Science Juniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

10. Bacteriology.

A study of the morphology and classification of bacteria, of culture methods, and of the relation of bacteria to such processes as decomposition, fermentation and digestion and to the production of disease. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

CHEMISTRY.

PROF. PARSONS, ASST. PROF. JAMES, DR. RANDALL, MR. PRATT.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solution of chemical problems will be required. For Agricultural and Engineering Freshmen, elective for Arts and Science Freshmen. *Three exercises per week. 1st S.*

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Chemistry 1.

Two exercises per week. 2d S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Chemistry 2 and 4. *Elective by special arrangement.*

4. Qualitative Analysis.

Chemistry 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Freshmen, Electrical and Mechanical Freshmen (Division 1), Agricultural Sophomores and

Electrical and Mechanical Sophomores (Division 2); elective for Arts and Science Sophomores and Juniors.

Open only to students who have completed Chemistry 1.

Freshman Year. First nine weeks. 2d S.
Sophomore and Junior Years. 1st S.
Fifty-one exercises.

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. First five weeks. *Twenty-five exercises. 1st S.*

6. Organic Chemistry.

Lectures and recitations. A study of the chemistry of the carbon compounds. For Agricultural and Chemical Sophomores, elective for Arts and Science students.

Open only to students who have completed Chemistry 1 and 2.
Three exercises per week. 2d S.

7. Physiological Chemistry.

Lectures and recitations on the composition and nutrition of plants and animals. For Chemical Juniors, elective for Agricultural and Arts and Science Seniors.

Open only to students who have completed Chemistry 6.
Two exercises per week. 1st S.

8. Organic Chemical Laboratory.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. For Chemical Juniors, elective for Arts and Science students.

Open only to students who have completed Chemistry 6.
Three exercises per week. 1st S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the Arts and Science Course in Sophomore, Junior and Senior Years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.
Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Chemistry 10. For Chemical Sophomores.
Six exercises per week. 2d S.

12. Advanced Quantitative Analysis.

Chemistry 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students desiring to specialize in agricultural and food chemistry the analysis made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron and steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Chemistry 11.

Four exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Chemistry 12. For Chemical Juniors.

Four exercises per week. 2d S.

14. Industrial Chemistry.

Chemistry 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views, and trips to the leading New England cities to examine important chemical manufactures will be taken as far as practicable. For Chemical Juniors and Seniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

15. Metallurgy.

Chemistry 15 consists of lectures describing the processes employed in the smelting of ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors and Seniors.

Open only to students who have completed Chemistry 1 and 2.

One exercise per week. 2d S.

Chemistry 14 and 15 are given in alternate years with Chemistry 22.

16. Assaying.

A course in the fire assay of gold and silver ores. For Chemical Seniors.

Open only to students who have taken Chemistry 10 or 18.

Seventeen exercises. 1st S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc. Elective, subject to desk room in laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4. Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the Engineering Departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc. Elective, subject to desk room in the laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4 or 5. Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Chemistry 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Chemistry 19. For Chemical Juniors.

Two exercises per week. 2d S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. For Chemical Juniors and Seniors. Course 21 comes in alternate years.

Open only to students who have completed Chemistry 1, 2 and 10. Two exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Chemistry 21, and is given in alternate years with Chemistry 14 and 15. For Chemical Juniors or Seniors.

Three exercises per week. 2d S.

23. Chemical Research.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 24 and will usually do so about the middle of the first semester. For Chemical Seniors.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation. For Chemical Seniors.

Eight exercises per week. 2d S.

DAIRYING.

PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, on tests for determining the acidity of milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition, separation and churning of milk. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors. *Four exercises per week. 1st S.*

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, the churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1.

Three exercises per week. 2d S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by-products outside the scope of butter and cheese making; the production and preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream. Elective for Agricultural Juniors and Seniors.

Open only to students who have completed Dairying 1.

Two exercises per week. 2d S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of the manufacturing, curing and marketing of the more important kinds of cheese. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1.

Two exercises per week. 2d S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1, 2 or 3.

Two exercises per week. 1st S.

*DRAWING.

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

1a. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective, shades and shadows. For Engineering Freshmen.

Two and one half exercises per week. 1st S.

1b. Industrial Drawing. Prof. Putnam, Mr. Laton.

Same as Course 1a. For Agricultural Freshmen, elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

NOTE—Alternating with shop work on Wednesdays.

* Students are advised not to purchase drawing instruments or supplies before consultation with the drawing instructor.

2a. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection. For Engineering Freshmen (Division 1).

Open only to students who have completed Drawing 1a and Mathematics 2. *Three exercises per week. 2d S.*

2b. Descriptive Geometry.

Same as Drawing 2a. For Engineering Freshmen (Division 2). First nine weeks.

Open only to students who have completed Drawing 1a and Mathematics 2. *Two exercises per week. 2d S.*

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of Drawing 2b. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last eight weeks.

Two exercises per week. 2d S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Open only to students who have completed Drawing 1b.

Two exercises per week. 2d S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Electrical and Mechanical Sophomores (Division 1). First eight weeks.

Open only to students who have completed Drawing 1a and 2a or 2b and Mathematics 2.

Two and one half exercises per week. 1st S.

6a. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Electrical and Mechanical Sophomores (Division 1). Last nine weeks.

Open only to students who have completed Drawing 1a to 3 and Mathematics 2. *Two exercises per week. 1st S.*

6b. Elementary Machine Drawing. Mr. Laton.

Same as Course 6a. For Electrical and Mechanical Sophomores (Division 2).

Open only to students who have completed Drawing 1a to 3 and Mathematics 2. *Two exercises per week. 1st S.*

7. Elementary Machine Drawing and Free-Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Open only to students who have completed Drawing 1a to 3.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools including steam boiler and engine details. For Electrical and Mechanical Sophomores.

Open only to students who have completed Drawing 6.

Two and one half exercises per week. 2d S.

NOTE—Alternating with shop work on Wednesdays.

9. Free-Hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for Arts and Science Sophomores.

Two exercises per week. 1st S.

10. Free-Hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for Arts and Science Sophomores. *Two exercises per week. 2d S.*

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of Drawing 11. The design of a building with details of ornament. Elective for Arts and Science Juniors.

Three exercises per week. 2d S.

13. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11 and 12.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11, 12 and 13. Two exercises per week. 2d S.

16. Free-Hand or Charcoal Drawing.

Elective for Arts and Science Freshmen. Last eight weeks.

Four exercises per week. 2d S.

ELECTRICAL ENGINEERING.

PROF. HEWITT, ASST. PROF. BUCK.

1. **Dynamo Electric Machinery.** Prof. Hewitt.

The course begins with a general study of both direct and alternating current dynamos and motors, including elementary theory, with a large number of practical problems to illustrate application of same. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 2 and Mathematics 6. *Three exercises per week. 1st S.*

2. **Dynamo Electric Machinery.** Asst. Prof. Buck.

This course is a continuation of Course 1. It takes up the theory of armature winding and construction; the general points of design; a study of various types of electrical machinery; laboratory methods of measurements, the various electrical quantities such as electromotive force, current, resistance, permeability of iron, the use of standard instruments; the laws of electrolysis; thermo-electric currents, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Electrical Engineering 1. *Three exercises per week. 2d S.*

4. **Electrical Laboratory.** Prof. Hewitt, Asst. Prof. Buck.

This course consists of the measurement of resistances, inductances, capacities; the permeabilities of samples of iron; the determination of the candle power of incandescent and arc lamps; the calibration of resistances; the measurement of power in alternating current circuits; alternator characteristics; the testing of synchronous and polyphase motors; transformers; power measurements by wattmeters and a general study of polyphase machinery. For Electrical Juniors.

Open only to students who have completed Electrical Engineering 1. *Three exercises per week. 2d S.*

6. **Telegraph and Telephone.** Asst. Prof. Buck.

This course consists in a careful study of the elementary electrical principles of telegraphy; the construction and connection of lines, repeaters; high speed telegraphy; simple and multiplex telegraphy; submarine signalling; automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy; also lectures and recitations on the acoustic and electrical principles of telephony; the different forms of calling and receiving apparatus and accessories and simple circuits. The latter part of the course is devoted to the consideration of

the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems. Elective for Electrical Juniors.

One exercise per week. 2d S.

11. Electrical Engineering Practice. Asst. Prof. Buck.

This course takes up the study of the properties of periodic curves; the effects of self-induction and capacity and a more detailed study of dynamos, motors, transformers and other electrical apparatus. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2. *Four exercises per week. 1st S.*

12. Electrical Engineering Practice. Prof. Hewitt.

This course is a continuation and completion of Electrical Engineering 11. It takes up more advanced theory and general practice. It also includes a thorough study of High Tension Power Transmission and deals with the selection of apparatus for generating stations and the distributing systems. A study will be made of the proper combinations of apparatus to correctly represent standard theory and practice. The design of the transmission line and of the distributing systems will be considered. The application of the theory will be brought out in lectures and established with a large number of practical problems. A careful study will be given to the various methods used for lightning protection. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11. *Four exercises per week. 2d S.*

13. Electric Railways. Asst. Prof. Buck.

In this course will be considered the principles which govern the application of electric motors to railway service, and the location of power and sub-stations as determined by economic questions. Following this will be given the practical points involved in the selection and operation of railway equipment including power and sub-station equipment, line and track, railway motors and car equipment, storage batteries, etc. The problem of utilizing electric energy in mining will also be considered. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2. *Two exercises per week. 1st S.*

15. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Course 4 covering a more advanced series of experiments. A written report will be re-

quired for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 4. *Four exercises per week. 1st S.*

16. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Course 15 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 15. *Four exercises per week. 2d S.*

17. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is similar to Course 4, only a specially arranged series of experiments is provided adapted to the needs of students in the Mechanical Engineering Course. For Mechanical Juniors.

Open only to students who have completed Electrical Engineering 2. *One exercise per week. 2d S.*

18. Thesis. Prof. Hewitt, Asst. Prof. Buck.

A deposit of fifteen dollars to cover any damage done to instruments or apparatus, etc., is required in this course. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department. For Electrical Seniors.

Three exercises per week. 2d S.

19. Dynamo Electric Machinery. Prof Buck.

This course is a continuation of Electrical Engineering 2, but arranged to meet the requirements of students in Mechanical Engineering. This course is not as advanced as Electrical Engineering 11, but covers the same subjects in a more elementary manner. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 2. *Three exercises per week. 1st. S.*

20. Dynamo Electric Machinery. Prof. Hewitt.

This course is a completion of Electric Engineering 19. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 19. *Two exercises per week. 2d S.*

21. Industrial Electricity. Prof. Hewitt.

This course consists of a careful study of the principles and methods employed in electrical measurements, such as resistance

of wire and batteries, current measurement by ammeters and electrolysis, the use of electrical measuring instruments and a series of laboratory experiments specially arranged to meet the requirements of Chemical Engineers. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Experiments in electrolysis, electrical furnaces, reduction of metals, etc., are provided. For Chemical Seniors. *Three exercises per week. 1st S.*

22. Industrial Electricity. Prof. Hewitt.

This course is a continuation of Electrical Engineering 21, but more advanced in nature. For Chemical Seniors.

Open only to students who have completed Electrical Engineering 21. Three exercises per week. 2d S.

23. Contracts and Specifications. Prof. Hewitt.

The laws and forms of engineering contracts; standard specifications for engineering materials and apparatus. For Mechanical Seniors, elective for Electrical Seniors.

One exercise per week. 1st S.

24. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Electrical Engineering 17 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 17. Two exercises per week. 1st S.

25. Design of Electrical Machinery. Prof. Buck.

This course covers a study of the design of the more important electrical machines, and includes the calculation of the dimensions of the machine, both electrical and mechanical, and the predetermination of its performance from the dimensions. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11. Three exercises per week. 2d S.

ENGLISH.

PROF. GROVES, PROF. SCOTT, MR. DAVID.

1. English Composition and Rhetoric. Mr. David.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For all Freshmen. *Three exercises per week. 1st S.*

2. English Composition and Rhetoric. Mr. David.

This is a continuation of English 1.

Open only to students who have completed English 1.

Three exercises per week. 2d S.

3. Advanced English Composition and Criticism. Mr. David.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticise. (Winchester's Principles of Literary Criticism.) Elective for Arts and Science Sophomores and Juniors.

Three exercises per week. 1st S.

4. The English Drama. Mr. David.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for Arts and Science Juniors and Seniors. *Three exercises per week. 2d S.*

5. The English Novel. Prof. Groves.

A seminar study of the development of the English novel. Elective for Arts and Science Juniors and Seniors.

Open only to students who have completed English 1, 2, 3 and 4.

Three exercises per week. 1st S.

6. Argumentation.

The principles and forms of argumentative composition, brief drawing and forensics. Practice in oratorical argumentation. Laycock and Scales' Argumentation and Debate. For Agricultural Seniors, elective for Chemical Seniors and Arts and Science Sophomores and Juniors.

Three exercises per week. 2d S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for Arts and Science and Agricultural Seniors.

Four exercises per week. 2d S.

FORESTRY.

PROF. PICKETT.

1. Principles of Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America.

The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; the value of trees for timber; how to improve existing woodlands; the influence of forests upon soils, crops and climate; the establishment and management of plantations and forest trees. For Agricultural Juniors. *Three exercises per week. 1st S.*

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; in estimating and measuring standing timber and harvesting forest products; forest administration, laws and working plans. Seminary and laboratory work. Elective for Agricultural Seniors who have shown special ability in Forestry 1.

Three exercises per week. 1st S.

3. Systematic Arboriculture.

A study of the botanical and physical characters of forest trees and shrubs. Special stress is laid on the value of various trees for lumber, fuel, posts, etc. Rapidity of growth, denseness and strength of fiber, etc., are features given particular attention. Elective for Agricultural Juniors who wish to specialize in Forestry. *Three exercises per week. 1st S.*

4. Forest Nursery Management.

A study of the methods of propagation and care of trees, shrubs, and perennial plants in the nursery. This course will be the same as Horticulture 10 except that students specializing in forestry will be given forest trees and shrubs for laboratory work instead of fruit and ornamental plants. Elective for Agricultural Juniors who wish to specialize in Forestry.

Three exercises per week. 2d S.

FRENCH.

PROF. WHORISKEY, MR. TAISNE.

1. Elementary French. Mr. Taisne.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation. For Freshmen offering German for admission. *Three exercises per week. 1st S.*

2. Elementary French. Mr. Taisne.

Continuation of French 1. Reading of Modern French Prose; translation from English into French of connected narrative. Dictation. For Freshmen offering German for admission.

Three exercises per week. 2d S.

3. French Prose. Mr. Taisne.

Reading and translation of French Prose, Composition, Poems. Elective for Arts and Science Students.

Three exercises per week. 1st S.

4. French Prose, History and Travel. Mr. Taisne.

Reading and Translation, Composition based on some book read in class. Elective for Arts and Science Students.

Three exercises per week. 2d S.

†5. French Prose of Nineteenth Century. Mr. Taisne.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will be read. Sight reading. Elective for Arts and Science Students. *Three exercises per week. 1st S.*

†6. French Prose of Nineteenth Century. Mr. Taisne.

Continuation of French 5. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

†7. French Literature in the Seventeenth Century. Prof. Whoriskey.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fontaine. Elective for Arts and Science Students.

Three exercises per week. 1st S

†8. French Literature in the Seventeenth Century. Prof. Whoriskey.

Continuation of French 7. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

‡9. French Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

One and one half exercises per week. 1st S.

‡10. French Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

One and one half exercises per week. 2d S.

GEOLOGY.

PROF. PARSONS, ASST. PROF. JACKSON.

1. Mineralogy. Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with spe-

† Courses 7 and 8 are to be given in 1909-1910 and then in alternate years with 5 and 6.

‡ During the year 1909-1910, French 9 and 10 will not be given.

cial reference to their economic value. For Chemical Juniors, elective for Agricultural and Arts and Science Juniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

2. Elementary Geology. Prof. Jackson.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Three exercises per week. 2d S.

3. Historical Geology. Prof. Jackson.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and Arts and Science Seniors.

Open only to students who have completed Zoölogy 3 and Geology 2. *Three exercises per week. 1st S.*

GERMAN.

PROF. WHORISKEY, MR. DAVID.

1. Elementary German. Prof. Whoriskey, Mr. David.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation. For Freshmen offering French for admission.

Three exercises per week. 1st S.

2. Elementary German. Prof. Whoriskey, Mr. David.

Continuation of German 1. Verbs, modal auxiliaries, essentials of syntax. Composition, reading and translation; poems. Dictation. For Freshmen offering French for admission.

Three exercises per week. 2d S.

3. German Prose of the Nineteenth Century. Prof. Whoriskey, Mr. David.

Reading and Translation. Composition based on some book read in class. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Scientific German. Prof. Whoriskey, Mr. David.

Reading and Translation. Composition. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores. *Three exercises per week. 2d S.*

†5. **Goethe.** Prof. Whoriskey.

His Life and Works. Elective for Arts and Science Students.
Three exercises per week. 1st S.

†6. **Goethe.** Prof. Whoriskey.

Continuation of German 5. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

†7. **Schiller.** Prof. Whoriskey.

Life and Works. Elective for Arts and Science Students.
Three exercises per week. 1st S.

†8. **Schiller.**

Continuation of German 7. Elective for Arts and Science Students. *Three exercises per week. 2d. S.*

‡9. **German Composition.** Prof. Whoriskey.

Elective for Arts and Science Students.
One and one half exercises per week. 1st S.

‡10. **German Composition.** Prof. Whoriskey.

Elective for Arts and Science Students.
One and one half exercises per week. 2d S.

11. **German Composition.**

Elective for Arts and Science Students.
Three exercises per week. 1st S.

12. **German Composition.**

Elective for Arts and Science Students.
Three exercises per week. 2d S.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

History 1 and 2 and History 3 and 4 are given in alternate years. History 1 and 2 are offered in 1910–'11.

History 1 to 4 are open only to students who have passed in Ancient History.

History 5 to 7 are open only to students who have passed in History and Constitution of the United States.

† Courses 5 and 6 are to be given in 1909–1910 and then in alternate years with 7 and 8.

‡ German 9 and 10 will not be given during the year 1909-1910.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For Arts and Science Freshmen. Elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

3. History of Europe from 1715 to 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. History of Europe since 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

5. American History to 1783.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1783 to 1837.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 2d S.

7. Political and Constitutional History of the United States since 1837.

Elective for Arts and Science Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. BUNTING.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into five classes, viz.: (1) Pomology, or Fruit Growing; (2) Olericulture, or Vegetable Gardening; (3) Floriculture, or Flower Growing; (4) Landscape Gardening; and (5) Nursery Practice.

1. Principles of Horticulture. Prof. Pickett.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture

rests and the scope and importance of its field. For Agricultural Freshmen. First eight weeks.

Three exercises per week. 1st S.

2. Olericulture. Mr. Bunting.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables are also considered. For Agricultural Freshmen.

Open only to those who have completed Horticulture 1.

Two exercises per week. 2d S.

3. Practical Pomology.

Dealing with problems of fruit growing such as location, choice of site, kind and adaptability of soil for fruit growing, soil management, planting of orchards, pruning, sprays and spraying, thinning, harvesting and marketing. Lectures and laboratory work. For Agricultural Sophomores.

Three exercises per week. 2d S.

4. Greenhouse Construction and Management. Mr. Lumsden.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Elective for Agricultural Juniors. *Two exercises per week. 1st S.*

5. Landscape Gardening. Mr. Lumsden.

An elementary course in ornamental and landscape gardening with special reference to the beautifying of home surroundings. Elective for Agricultural Juniors.

Two exercises per week. 2d S.

6. Vegetable Gardening under Glass. Mr. Lumsden.

A study of the methods of growing market vegetables in greenhouses. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

7. Nursery Management. Prof. Pickett.

A study of the methods of propagation and the care of trees, shrubs and perennial plants in the nursery. Lectures, reference readings and practice. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

8. Viticulture and Small Fruit Culture.

A comprehensive study of the grape and small fruits such as the strawberry, raspberry, blackberry, currant and gooseberry. Each fruit is studied with reference to all the essential points such as history, classification, propagation, planting, pruning, enemies, diseases, picking and marketing. Elective for Agricultural Juniors. *Two exercises per week. 1st S.*

9. Commercial Floriculture. Mr. Lumsden.

A study of the growing of cut flowers and decorative plants. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors. *Three exercises per week. 1st S.*

10. Evolution and Improvement of Plants. Prof. Pickett.

The application of the principles of evolution to the improvement of plants. Variation, selection and heredity as applied to the problems of plant breeding in agricultural practice. Elective for Agricultural Seniors. *Two exercises per week. 2d S.*

11. Systematic Pomology and Commercial Orcharding.

The first eight weeks of the semester are devoted to a study of the leading varieties of fruits and their adaptations, with special reference to New England conditions. During the remainder of the semester this course deals with the management of commercial orchards, problems of marketing, packing, transportation and coöperation. Lectures, reference reading and laboratory work. Elective for Agricultural Seniors.

Four exercises per week. 1st S.

12. Advanced Landscape Gardening. Mr. Lumsden.

A study of the principles and composition of landscape gardening as applied to public and private grounds. Lectures, reference readings and plans. Elective for Agricultural Seniors.

Open only to students who have completed Horticulture 7.

Two exercises per week. 2d S.

13. Advanced Vegetable Gardening. Mr. Bunting.

The management of commercial vegetable gardening establishments; rotation of crops, manures, markets and special crops. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

14. Cold Storage and Horticultural Manufactures. Prof. Pickett.

This course embraces a study of the methods and principles involved in the building and refrigeration of fruit storage houses and in the manufacture of fruit and vegetable products. The

efficiency of various refrigerants and insulating systems is discussed in relation to cold storage. The processes of canning and evaporating fruits and vegetables, the manufacture and bottling of fruit juices, and the relation of moulds, yeasts and bacteria to these processes are taught. Lectures, assigned reading and laboratory work. Elective for Agricultural Seniors.

Three exercises per week. 2d S.

LATIN.

1. Livy (book I); Pliny (Letters).

Elective for Arts and Science Freshmen. Open only to students who have offered Advanced Latin for entrance.

Three exercises per week. 1st S.

2. Terence (Andria and Phormio).

Continuation of Latin 1. Elective for Arts and Science Freshmen. *Three exercises per week. 2d S.*

3. Tacitus (Annals).

Elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Horace (Odes and Epodes).

Continuation of Latin 3. Elective for Arts and Science Sophomores. *Three exercises per week. 2d S.*

MACHINE DESIGN.

PROF. PUTNAM, MR. LATON.

1. Mechanism. Prof. Putnam.

The study of machine parts with respect to their forms, motions and modes of connection; the kinematics of fluids; the theory of the slide valve. For Elective and Mechanical Sophomores.

Open only to students who have completed Mathematics 1 to 2.

Three exercises per week. 1st S.

2. Mechanism. Prof. Putnam.

Continuation of Course 1, including the study of elementary machine design. For Electrical and Mechanical Sophomores.

Three exercises per week. 2d S.

3. Theoretical Mechanics.

Composition and resolution of forces, conditions of equilibrium, center of gravity, with special attention to plane surfaces, friction, the simple machines, laws of motion, motion in a resist-

ing medium, constrained motion, impact, work and energy, moment of inertia, particularly of plane surfaces; also strength of materials. For Engineering Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive and Physics 1. Four exercises per week. 1st S.

4. Designing and Drawing. Prof. Putnam.

The application of Course 3 to practical problems worked out in the drafting room. For Electrical and Mechanical Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive, Physics 1 and Machine Design 1 and 2.

Three exercises per week. 1st S.

5. Theoretical Mechanics.

Continuation of Machine Design 3. For Engineering Juniors.

Four exercises per week. 2d S.

6. Shop Machinery. Prof. Putnam, Mr. Laton.

The design of shop machinery of all kinds, except power plant machinery. For Mechanical Juniors.

Three exercises per week. 2d S.

MATHEMATICS.

PROF. PETTEE, ASST. PROF. MOORE.

1. Algebra Completed. Prof. Pettee, Asst. Prof. Moore.

For all Freshmen. *Four exercises per week. 1st S.*

2. Solid Geometry with Advanced Course. Asst. Prof. Moore.

For Engineering Freshmen entering without the subject, elective for Agricultural and Arts and Science Freshmen.

Two exercises per week. 1st S.

3. Plane and Spherical Trigonometry. Prof. Pettee, Asst. Prof. Moore.

For all Freshmen. First nine weeks.

Four exercises per week. 2d S.

4. Surveying. Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. For Engineering and Agricultural Freshmen, elective for Arts and Science Freshmen. Last eight weeks. *Four exercises per week. 2d S.*

5. Analytical Geometry. Prof. Pettee, Asst. Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores. *Five exercises per week. 1st. S.*

6. Differential and Integral Calculus. Prof. Pettee, Asst. Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores. *Five exercises per week. 2d S.*

7. Differential Equations. Prof. Pettee.

Elective for Arts and Science Juniors.

Two exercises per week. 1st S.

8. Quaternions. Prof. Pettee.

Elective for Arts and Science Juniors.

Two exercises per week. 2d S.

9. Astronomy. Prof. Pettee.

Elective for Arts and Science Seniors.

Two exercises per week. 2d S.

*MECHANICAL ENGINEERING.

PROF. CARDULLO, PROF. HEWITT, PROF. PUTNAM.

7. Thermodynamics. Prof. Cardullo.

Study of the thermodynamic properties of gases and vapors, and of the phenomena of operation of thermodynamic engines; analysis of the causes of energy losses and methods of minimization; interpretation of indicator and temperature-entropy diagrams; study of steam engines and turbines, boilers, gas engines and producers and refrigerating machinery. For Electrical and Mechanical Juniors and Chemical Seniors.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6. Three exercises per week. 1st S.

8. Thermodynamics. Prof. Cardullo.

Continuation of Mechanical Engineering 7. For Electrical and Mechanical Juniors. *Three exercises per week. 2d S.*

9. Mechanical Laboratory. Prof. Cardullo.

Study of apparatus and methods of calibration used in engineering investigations; testing of iron, steel and wood; valve setting and indicator practice. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6. Two exercises per week. 1st S.

10. Mechanical Laboratory. Prof. Cardullo.

Study of miscellaneous engineering materials and apparatus, and standard methods of testing; lubricants, cement, fuels,

* A fee of two dollars and one-half per semester will be charged to students taking Mechanical Engineering laboratory work, to cover damage and breakage, the balance to be returned at the end of the semester.

boilers, engines, pumps, power-plant appliances and supplies, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Mechanical Engineering 9. *Two exercises per week. 2d S.*

11. Hydraulics. Prof. Cardullo.

A study of the principles and practice of hydraulic machinery and measurements. For Electrical and Mechanical Seniors.

Open only to students who have completed Machine Design 5 and Physics 1 and 2. *Four exercises per week. 1st S.*

12. Materials of Engineering. Prof. Cardullo.

A study of the properties, commercial forms, methods of preparation and use of engineering materials. For Electrical and Mechanical Seniors. *Two exercises per week. 1st S.*

13. Mechanical Laboratory. Prof. Cardullo.

A critical study and detailed analysis of the performance of engineering apparatus, particularly of steam and gas engines, hydraulic apparatus, etc. For Electrical and Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 10. *Two exercises per week. 1st S.*

14. Mechanical Laboratory. Prof. Cardullo.

Continuation of Course 13. For Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 13. *Two exercises per week. 2d S.*

15. Heat Engine Design. Prof. Cardullo.

Study of the structure and proportions of heat engines; design of valves and valve gears, governors, fly wheels and principal members of steam and gas engines and steam turbines. For Mechanical Seniors. *Five exercises per week. 1st S.*

16. Shop Design and Equipment. Prof. Putnam.

A study of the proper choice and arrangement of tools, machinery and equipment of all kinds for shops and factories; the design of suitable buildings for housing the same and estimates of quantities of material and cost of construction. Particular attention will be given to textile mills and machine shops. For Mechanical Seniors. *Four exercises per week. 2d S.*

17. Power Plant Design. Prof. Hewitt, Prof. Cardullo.

A study of different types of power plants, power plant apparatus and equipment and of controlling factors in the cost of

power generation and distribution; the design of a power plant to meet given conditions. For Mechanical Seniors.

Two exercises per week. 2d S.

19. Economics of Engineering. Prof. Cardullo.

A discussion of the principles and practice of systems of shop organization and management, cost keeping, wage payment and methods of cost reduction; also a discussion of engineering finance, welfare work, labor conditions, factory laws, etc. For Electrical and Mechanical Seniors.

Three exercises per week. 2d S.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural Seniors, elective for Arts and Science Seniors. *Two exercises per week. 1st S.*

MILITARY SCIENCE AND TACTICS.

LIEUT. EDGERLY.

All male students, unless members of the Senior or Junior Class, or unless physically unfit, are required to drill and to attend recitations in Military Science. Military Science 1 to 8 inclusive consists of Military Drill and includes all the practical instruction in the following subjects: Close and Extended Order Drills by Company and Battalion, Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen. *Two exercises per week. 1st S.*

2. Military Drill.

Continuation of Military Science 1. For Freshmen.

Two exercises per week. 2d S.

3. Military Drill.

For Sophomores. *Two exercises per week. 1st. S.*

4. Military Drill.

Continuation of Military Science 3. For Sophomores.

Two exercises per week. 2d S.

5. Military Drill.

Elective for Juniors. *Two exercises per week. 1st. S.*

6. Military Drill.

Continuation of Military Science 5. Elective for Juniors.
Two exercises per week. 2d S.

7. Military Drill.

Elective for Seniors only. *Two exercises per week. 1st. S.*

8. Military Drill.

Continuation of Military Science 5. Elective for Seniors only.
Two exercises per week. 2d S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Freshmen.
One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Freshmen. *One exercise per week. 2d S.*

11. Military Primer.

Recitations and map problems covering advance and rear guards; outposts; patrols, etc.
For Sophomores. *One exercise per week. 1st S.*

12. Military Map Reading and Sketching.

For Sophomores. *One exercise per week. 2d S.*

13. Field Service Regulations.

Preparation of problems requiring the issuing of field orders, knowledge of marches, transportation, subsistence, etc. Elective for Juniors. *One exercise per week. 1st S.*

14. Army Regulations and Preparation of Requisitions, etc.

Elective for Juniors. *One exercise per week. 2d S.*

15. Army Organization and Administration.

Lectures and preparation of military papers. Elective for Seniors only. *One exercise per week. 1st S.*

16. Army Organization and Administration.

Continuation of Course 15. Elective for Seniors only.
One exercise per week. 2d S.

PHILOSOPHY AND PEDAGOGY.

PROF. GROVES.

The certification of teachers in the public schools is usually based upon the candidate's preparation in the subjects covered by Philosophy 1, 2, 3, 4 and 5. In many states, certification is

required of public school teachers; in other states, as in New Hampshire, it is a great advantage.

1. Psychology and Logic.

An introduction to the study of mental life and the condition of valid thinking. The practical needs of the student are related as closely as possible to the work of the course. For Arts and Science Sophomores or Seniors, elective for Agricultural Sophomores. *Three exercises per week. 1st. S.*

2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers, Comemius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart. Elective for Arts and Science Freshmen and Sophomores.

Two exercises per week. 2d S.

3. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's Philosophy of Education. Elective for Agricultural Sophomores or Juniors, Arts and Science Juniors and Chemical Seniors. *Three exercises per week. 2d S.*

4. The Problems of School Education.

The method of the recitation; management and discipline of classes, observation of teaching. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy. Three exercises per week. 1st S.

5. School Administration.

Courses of study; school hygiene; school law; a discussion of the essential elements of good administration. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy. Three exercises per week. 2d. S.

6. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences; the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy. Three exercises per week. 2d. S.

9. Ethics.

A study of the development of ethical thought, the various types of ethical theory and the philosophic basis of social and political rights and duties. Elective for Arts and Science Students.

Open only to students who have completed Philosophy 1 and Political Science 1. Three exercises per week. 1st S.

PHYSICS.

PROF. NESBIT.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems. It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics. Instruction is given by lectures, recitations and problem work. The text used is Watson's Physics. Reference is made to Ames' Theory of Physics, Duff's Textbook of Physics, and other standard treatises.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermodynamics. Watson's Physics is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Course Sophomores. *Three exercises per week. 1st S.*

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based. The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena. The student makes a careful study of optical instruments of all classes. Watson's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech. The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's Elementary Lessons in Electricity and Magnetism is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

3. Physical Measurements.

This course is intended to serve as an introduction to the work in the Physical Laboratory. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results. A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations. The work in Precision of Measurements consists of a course of lectures and the solution of a number of problems illustrating the application of the subject. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors. *One exercise per week. 1st S.*

4. Physical Laboratory.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others. The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation. A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 4 and 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors. *Three exercises per week. 1st S.*

5. Physical Laboratory.

A continuation of Course 4. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors.

Four exercises per week. 2d S.

A fee of ten dollars is required in Courses 4 and 5 to cover breakage, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

Physical Laboratory work. Similar to Courses 4 and 5. Ewell's Physical Chemistry is used with this course. For Chemical Juniors. *Two exercises per week. 1st S.*

7. Physical Laboratory.

Continuation of Course 6 and is largely devoted to experimental work in Physical Chemistry.

Four exercises per week. 2d S.

8. Physical Laboratory.

For Agricultural Sophomores.

One exercise per week. 2d S.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For Arts and Science Sophomores, Agricultural Juniors and Engineering Seniors.

Three exercises per week. 2d S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

4. Money and Banking.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 4 will be offered in the year 1910–'11.

Open only to students who have completed Political Science 1.
Three exercises per week. 2d S.

5. Public Finance.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 5 will be offered in the year 1909–'10.

Open only to students who have completed Political Science 1.
Three exercises per week. 2d S.

SHOP WORK.

PROF. CARDULLO, MR. BROWN, MR. LITTLE.

Three hours' work in the shop is reckoned as one exercise.

1a. Wood Work. Mr. Little.

Exercises in carpentry work, joinery and pattern making. For Engineering Freshmen.

Two and one half exercises per week. 1st S.

1b. Wood Work. Mr. Little.

Same as Course 1a. Elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

2. Forging. Mr. Brown.

This course consists of exercises in upsetting, drawing, forming and welding. For Engineering Freshmen. (Division 2.) First nine weeks. *Two exercises per week. 2d S.*

3. Forging.

Same as Shop Work 2. For Electrical and Mechanical Sophomores, (Division 1). *Two exercises per week. 1st S.*

4. Machine Work. Mr. Brown.

A course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. For Electrical and Mechanical Sophomores. *Two and one half exercises per week. 2d S.*

9. General Machine Work. Mr. Brown.

Continuation of Shop Work 4. For Electrical and Mechanical Juniors. *One exercise per week. 1st S.*

10. Manufacturing. Mr. Brown.

Construction and use of jigs and special fixtures; use of limit gauges, special tools, turret and screw machinery; manufacture

of some simple machine, using special appliances. For Electrical Juniors, elective for Mechanical Juniors.

One exercise per week. 2d S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

12. Special Shop Work.

13. Wood Work.

Same as Shop Work 1. For Agricultural Freshmen. Last nine weeks.

One and one half exercises per week. 1st S.

14. Forging. Mr. Brown.

For Agricultural Freshmen.

Two exercises per week. 2d S.

15. Machine Work. Mr. Brown.

Same as Shop Work 4. For Chemical Seniors.

Two exercises per week. 1st S.

†SPANISH.

1. Elementary Spanish.

This course will consist of an elementary study of Spanish grammar, supplemented and followed by reading of easy Spanish texts. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

2. Elementary Spanish.

This course will consist of a thorough review of Spanish grammar, based on the texts studied in Spanish 1, and reading of more advanced Spanish texts. Elective for Arts and Science Juniors.

Open only to students who have completed Course 1.

Three exercises per week. 2d S.

ZOOLOGY.

PROF. SANDERSON, MR. JACKSON.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Invertebrate Zoology.

The structure and life of the invertebrate animals, except in-

†Spanish 1 and 2 will not be given in 1909–'10.

sects. Lectures and laboratory dissections of typical forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores. *Three exercises per week. 1st S.*

2. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, the general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 2d S.

3. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural Juniors, elective for Arts and Science Juniors.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. 2d S.

4. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories and habits and the methods of combating them; special consideration of general farm methods for control of insects affecting staple crops, and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural Juniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

5. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. Elective for Agricultural Juniors or Seniors.

Open only to students who have completed Zoölogy 3 and 4.

Three exercises per week. 1st S.

6. Advanced Economic Entomology.

Continuation of Course 6. Elective for Agricultural Juniors and Seniors. *Three exercises per week. 2d S.*

7. General Physiology.

The vital phenomena of animal life with special reference to the nervous, digestive, muscular, secretory and sensory processes in the higher animal forms. Elective for Agricultural and Arts and Science Juniors or Seniors.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 2d S.

8. Evolution.

Lectures taking up the problems of variation, heredity, breeding, and selection from an experimental standpoint, and discussions of recent theories with their bearings on the question of evolution. This course is a basis for advanced work in plant and animal breeding. For Agricultural Seniors, elective for Arts and Science Juniors and Seniors.

Three exercises per week. 1st S.

10. Advanced Zoology.

This course is arranged to suit the individual needs of students who elect Zoölogy for Senior year.

Open only to students who have completed previous courses and have shown proficiency in Zoölogy.

Three or four exercises per week. 1st S.

11. Advanced Zoology.

Continuation of Course 10.

Open only to students who have completed Course 10.

Three or four exercises per week. 2d S.

12. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. Elective for Agricultural and Arts and Science Juniors and Seniors.

One exercise per week throughout the year.

FOUR YEAR COURSES.

COURSES OF STUDY AND SCHEDULE OF HOURS.

(For details see Description of Studies.)

Attendance at Chapel exercises is required of all students and attendance at Military Drill is required of all male students, unless members of the Senior or Junior class or unless physically unfit.

AGRICULTURAL COURSE.

Freshman Year.

FIRST SEMESTER.

Chemistry 1	Inorganic Chemistry	3
Drawing 1b	Industrial Drawing	2
English 1	English Composition and Rhetoric	3
French 1 or *German 1*	Elementary French / Elementary German	3
Horticulture 1	Principles of Horticulture (first eight weeks)	1½

Mathematics 1	Algebra	4
**Mathematics 2*	Solid Geometry	2
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Shop Work 13	Wood Shop (last nine weeks)	1½

SECOND SEMESTER.

Chemistry 2	Inorganic Chemistry	2
Drawing 4	Design of Farm Buildings	2
English 2	English Composition and Rhetoric	3
French 2 or *German 2*	Elementary French / Elementary German	3
Horticulture 2	Olericulture	2
Mathematics 3	Trigonometry (first nine weeks)	2½
Mathematics 4	Surveying (last eight weeks)	1½
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty, etc	1
Shop Work 14	Forge Shop	2

Sophomore Year.

FIRST SEMESTER.

An. Husb. 1	Types and Breeds of Livestock	3
Botany 1	General Botany	3
Chemistry 4	Qualitative Analysis	3
†*German 3*	German Prose of the Nineteenth Century	3
Military Science 3	Drill	1
Military Science 11	Military Primer	1
†*Philosophy 1*	Psychology	3
Physics 1	Mechanics and Heat	3
Zoölogy 1	Invertebrate Zoölogy	3

SECOND SEMESTER.

Botany 2	General Botany	3
Chemistry 6	Organic Chemistry	3
†*German 4*	Scientific German	3
Horticulture 3	Practical Pomology	3
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
†*Philosophy 3*	Philosophy of Education	3
Physics 2	Light, Sound and Electricity	3
Physics 8	Physical Laboratory	1
Zoölogy 2	Vertebrate Anatomy and Physiology	3

* Elective.

† Students are required to elect either German 3 and 4 or Philosophy 1 and 3. Students who elect Philosophy in place of German in the first semester will take Political Science 1 in the second semester, leaving Philosophy 3 until the second semester of the Junior Year.

Junior Year.

Elect courses to make a total of at least 18 hours.

FIRST SEMESTER.

Agronomy 1	Farm Equipment and Farm Crops	3
**An. Husb. 5*	Poultry	2
Botany 3	Plant Pathology	3
Dairying 1	Farm Dairying	4
Forestry 1	Principles of Forestry	3
**Horticulture 4*	Greenhouse Construction and Management	2
**Horticulture 8*	Viticulture and Small Fruit Culture	2
**Military Science 5*	Drill	1
**Military Science 13*	Field Service Regulations	1
Zoölogy 4	Economic Entomology	3

SECOND SEMESTER.

Agronomy 2	Soils and Soil Physics	3
An. Husb. 3	Feeds and Feeding	3
**An. Husb. 4*	Veterinary Science	3
**An. Husb. 6*	Advanced Livestock	3
**Botany 4*	Mycology	3
**Botany 5*	Plant Physiology	3
**Botany 10*	Bacteriology	3
**Dairying 3*	Technology of Milk	2
Geology 2	Elementary Geology	3
**Horticulture 5*	Landscape Gardening	2
**Horticulture 7*	Nursery Management	3
**Military Science 6*	Drill	1
**Military Science 14*	Army Regulations	1
Political Science 1	Political Economy	3
**Zoölogy 6*	Advanced Economic Entomology.	3
**Zoölogy 7*	General Physiology	3

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Animal Husbandry 3. Students have also an opportunity to elect courses in Animal Husbandry, Dairying and Zoölogy on the one hand, and in Botany and Horticulture on the other.

Senior Year.

FIRST SEMESTER.

Elect six hours in addition to required work.

**Agronomy 3*	Soil Management and Fertility..	3
Agronomy 5	Agricultural Seminar	2
**An. Husb. 7*	Live Stock Management	3
**Botany 6*	Plant Histology	3
**Botany 9*	Systematic Botany	3
**Dairying 4*	Factory Management	3

* Elective.

**Dairying 6*	Dairy Research	2
**Forestry 2*	Forest Technology	3
**Forestry 3*	Systematic Arboriculture	3
History 5	American History to 1783	3
**Horticulture 9*	Commercial Floriculture	3
**Horticulture 11*	Systematic Pomology and Commercial Orcharding	4
Meteorology 1	Meteorology	2
Thesis		2
Zoölogy 8	Evolution	3
**Zoölogy 10*	Advanced Zoölogy	3 or 4
**Zoölogy 11*	Advanced Zoölogy	3 or 4

SECOND SEMESTER.

Elect six hours in addition to required work.

**Agronomy 4*	Manures and Fertilizers	2
Agronomy 6	Agricultural History and Economics (first nine weeks)	2
Agronomy 7	Farm Mechanics (last eight weeks)	2
**An. Husb. 2*	Principles of Breeding	2
**Botany 5*	Plant Physiology	3
**Botany 10*	Bacteriology	3
**Dairying 2*	Advanced Butter Making	3
**Dairying 5*	Dairy Bacteriology and Cheese Making	2
English 6	Argumentation	3
History 6	Const. and Political History of U. S. (1783–1837)	3
**Horticulture 6*	Vegetable Gardening Under Glass	2
**Horticulture 10*	Evolution and Improvement of Plants	2
**Horticulture 12*	Advanced Landscape Gardening	2
**Horticulture 13*	Advanced Vegetable Gardening	2
**Horticulture 14*	Cold Storage and Horticultural Manufactures	3
Thesis		2
**Zoölogy 6*	Advanced Economic Entomology	3
**Zoölogy 7*	General Physiology	3

In addition to the above listed courses a student may elect any other courses offered in the college for which he is qualified.

ARTS AND SCIENCE COURSE.

The requirements for graduation from the Arts and Science Course include (1) the completion of all required studies, including two years of science, (2) the completion of one hundred and forty-four semester hours and (3) the election of studies during the Sophomore, Junior and Senior Years according to the group system.

The group system requires that all Arts and Science Course students shall elect one *major* and two *minor* courses; the *major*

*Elective.

to consist of twenty-one credit hours including thesis, in one of the three groups, in addition to the required work; and the *minors* to consist of fifteen credit hours in each of the other two groups, in addition to the required work.

One week previous to making elections for the Junior Year, a student must submit to the Course Committee for approval the selection of studies to satisfy the major requirements.

GROUP I.

Languages and Literature:—English; French; German; Latin; Spanish.

GROUP II.

Mathematics and Sciences:—Mathematics; Zoology; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics; Geology; Meteorology.

GROUP III.

History; Social Science and Philosophy:—History; Political Science; Philosophy and Pedagogy.

Freshman Year.

FIRST SEMESTER.

**Botany 1*	General Botany	3
**Chemistry 1*	Inorganic Chemistry	3
**Drawing 1b*	Industrial Drawing	2
English 1	English Composition and Rhetoric	3
French 1 or *German 1*	Elementary French / Elementary German	3
†History 1 or †History 3	European History, 476–1492 / European History, 1715–1815	3
**Latin 1*	Livy, Pliny	3
Mathematics 1	Algebra	4
**Mathematics 2*	Solid Geometry	2
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
**Shop Work 1b*	Wood Work	2
**Zoölogy 1*	Invertebrate Zoölogy	3

SECOND SEMESTER.

**Botany 2*	General Botany	3
**Chemistry 2*	Inorganic Chemistry	2
†Drawing 16	Free-Hand or Charcoal Drawing (Last eight weeks)	1½
English 2	English Composition and Rhetoric	3

* Elective.

† Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

French 2 or *German 2*	Elementary French ... / Elementary German ...	3
†*History 2* or †*History 4*	European History, 1492–1715... / European History since 1815...	3
**Latin 2*	Terence ...	3
Mathematics 3	Trigonometry (first nine weeks)..	2½
†*Mathematics 4*	Surveying (last eight weeks)....	1½
Military Science 2	Drill ...	1
Military Science 10	Manual of Guard Duty...	1
**Philosophy 2*	History of Educational Theory...	2
**Zoölogy 2*	Vertebrate Anatomy and Physiology ...	3

Sophomore Year.

FIRST SEMESTER.

**Botany 1*	General Botany ...	3
**Chemistry 4*	Qualitative Analysis ...	3
**Drawing 9*	Free-Hand Drawing...	2
**English 3*	Advanced English Composition and Criticism ...	3
**German 3*	German Prose of the Nineteenth Century ...	3
**History 1* or **History 3*	European History, 476–1492 ... / European History, 1715–1815...	3
**Latin 3*	Tacitus ...	3
**Mathematics 5*	Analytical Geometry ...	5
Military Science 3	Drill ...	1
Military Science 11	Military Primer ...	1
Philosophy 1	Psychology and Logic ...	3
**Physics 1*	Mechanics and Heat ...	3
**Zoölogy 1*	Invertebrate Zoölogy...	3

SECOND SEMESTER.

**Botany 2*	General Botany ...	3
**Drawing 10*	Free-Hand Drawing...	2
**English 6*	Argumentation ...	3
**German 4*	Scientific German ...	3
**History 2* or **History 4*	European History, 1492–1715.. / European History since 1815...	3
**Latin 4*	Horace ...	3
**Mathematics 6*	Calculus ...	5
Military Science 4	Drill ...	1
Military Science 12	Military Map Reading and Sketching ...	1
**Physics 2*	Light, Sound and Electricity....	3
**Philosophy 2*	History of Educational Theory...	2
Political Science 1	Political Economy ...	3
**Zoölogy 2*	Vertebrate Anatomy and Physiology ...	3

* Elective.

† Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

Junior Year.

All elective.

FIRST SEMESTER.

Botany 6	Plant Histology	3
Botany 9	Systematic Botany	3
Chemistry 4	Qualitative Analysis	3
Drawing 11	Architectural Drawing	3
English 3	Advanced English Composition	3
English 5	English Novel	3
French 3	Scientific French	3
History 5	American History to 1783	3
Mathematics 7	Differential Equations	2
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Philosophy 4	Problems of School Education	3
Physics 3	Physical Measurements	1
Physics 4	Physical Laboratory	1
Political Science 2	Laws of Business	3
Political Science 3	American Const. Law	3
Spanish 1	Elementary Spanish	3
Zoölogy 4	Economic Entomology	3
Zoölogy 8	Evolution	3

SECOND SEMESTER.

Botany 5	Plant Physiology	3
Botany 10	Bacteriology	3
Chemistry 6	Organic Chemistry	3
Drawing 12	Architectural Drawing	3
English 4	English Drama	3
English 6	Argumentation	3
French 4	French Prose, History and Travel	3
Geology 1	Mineralogy	2
Geology 2	Elementary Geology	3
History 6	Const. and Political History of U. S., 1783–1837	3
Mathematics 8	Quaternions	2
Military Science 6	Drill	1
Military Science 14	Army Regulations	1
Philosophy 3	Philosophy of Education	3
Philosophy 5	School Administration	3
Physics 5	Physical Laboratory	4
Political Science 4 or Political Science 5	Money and Banking / Public Finance	3
Spanish 2	Elementary Spanish	3
Zoölogy 7	General Physiology	3

Senior Year.

All elective.

FIRST SEMESTER.

Botany 6	Plant Histology	3
Botany 9	Systematic Botany	3
Chemistry 7	Physiological Chemistry	2
Drawing 13	Advanced Architectural Drawing	3
English 5	English Novel	3
French 5	French Prose of 19th Century	3

Geology 3	Historical Geology	3
German 5	Goethe, His Life and Works	3
History 7	Const. and Political History of U. S. since 1837	3
Meteorology 1	Meteorology	2
Military Science 7	Drill	1
Military Science 15	Army Organization and Administration	1
Philosophy 1	Psychology and Logic	3
Philosophy 4	Problems of School Education	3
Philosophy 9	Ethics	3
Political Science 2	Laws of Business	3
Political Science 3	American Constitutional Law	3
Spanish 1	Elementary Spanish	3
Thesis		2
Zoölogy 8	Evolution	3
Zoölogy 10	Advanced Zoölogy	3 or 4

SECOND SEMESTER.

Botany 5	Plant Physiology	3
Botany 8	Advanced Botany	3
Botany 10	Bacteriology	3
Drawing 14	Advanced Architectural Drawing	2
English 4	English Drama	3
English 7	American Literature	4
French 6	French Prose of 19th Century	3
Geology 2	Elementary Geology	3
German 6	Goethe (continued)	3
Mathematics 9	Astronomy	2
Military Science 8	Drill	1
Military Science 16	Army Organization and Administration	1
Philosophy 5	School Administration	3
Philosophy 6	Introduction to Philosophy	3
Political Science 4 or Political Science 5	Money and Banking / Public Finance	3
Spanish 2	Elementary Spanish	3
Thesis		1 or 2
Zoölogy 7	General Physiology	3
Zoölogy 11	Advanced Zoölogy	3 or 4

ENGINEERING COURSES.

Freshman Year.

FIRST SEMESTER.

Chemistry 1	Inorganic Chemistry	3
Drawing 1a	Industrial Drawing	2½
English 1	English Composition and Rhetoric	3
French 1 or German 1	Elementary French / Elementary German	3
Mathematics 1	Algebra	4
‡*Mathematics 2*	Solid Geometry	2

‡ For Freshmen entering without the subject.

Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Shop Work 1a	Wood Work	2½

SECOND SEMESTER.

Chemistry 2	Inorganic Chemistry	2
†*Chemistry 4*	Qualitative Analysis (first division), (first nine weeks)	3
Drawing 2a	Descriptive Geometry (first division)	3
Drawing 2b	Descriptive Geometry (second division), (first nine weeks)	2
Drawing 3	Continuation of Drawing 2 (second division), (last eight weeks)	2
English 2	English Composition and Rhetoric	3
French 2 or German 2	Elementary French / Elementary German	3
Mathematics 3	Trigonometry (first nine weeks)	2½
Mathematics 4	Surveying (last eight weeks)	1½
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty, etc.	1
†*Shop Work 2*	Forging (second division), (first nine weeks)	2

CHEMICAL ENGINEERING COURSE.

Sophomore Year.

FIRST SEMESTER.

Chemistry 5	Qualitative Analysis (first five weeks)	1½
Chemistry 10	Quantitative Analysis (last twelve weeks)	3½
Drawing 7	Elementary Machine Drawing and Free-Hand Drawing of Chem. Apparatus	2
German 3	German Prose of the Nineteenth Century	3
Mathematics 5	Analytical Geometry	5
Military Science 3	Drill	1
Military Science 11	Military Primer	1
Physics 1	Mechanics and Heat	3

SECOND SEMESTER.

Chemistry 6	Organic Chemistry	3
Chemistry 11	Quantitative Analysis	6
German 4	Scientific German	3
Mathematics 6	Differential and Integral Calculus	5
Military Science 4	Drill	1

† Division 1 elects Chemistry 4 instead of Shop Work 2 and Division 2 elects Shop Work 2 instead of Chemistry 4. These divisions are made on the basis of scholarship in Chemistry 1.

Military Science 12	Military Map Reading and Sketching	1
Physics 2	Light, Sound and Electricity	3

Junior Year.

FIRST SEMESTER.

Chemistry 7	Physiological Chemistry	2
Chemistry 8	Organic Chemical Laboratory	3
Chemistry 12	Advanced Quantitative Analysis	4
Chemistry 19	Chemical Journals	2
†*Chemistry 21*	Physical Chemistry	2
Machine Design 3	Theoretical Mechanics	4
Physics 6	Physical Laboratory	2

SECOND SEMESTER.

Chemistry 13	Advanced Quantitative Analysis	4
†*Chemistry 14 and*	Industrial Chemistry	2
†*Chemistry 15 or*	Metallurgy	1
†*Chemistry 22*	Physical and Electro-chemistry	3
Chemistry 20	Chemical Journals	2
Geology 1	Mineralogy	2
Machine Design 5	Theoretical Mechanics	4
Physics 7	Physical Laboratory	4

Senior Year.

FIRST SEMESTER.

Chemistry 16	Assaying	1
†*Chemistry 21*	Physical Chemistry	2
Chemistry 23	Chemical Research and Thesis	8
Elect. Engineering 21	Industrial Electricity	3
Mech. Engineering 7	Thermodynamics	3
Shop Work 15	Machine Shop	2

SECOND SEMESTER.

†*Chemistry 14 and*	Industrial Chemistry	2
†*Chemistry 15 or*	Metallurgy	1
†*Chemistry 22*	Physical and Electro-chemistry	3
Chemistry 24	Thesis	8
Elect. Engineering 22	Industrial Electricity	3
**English 6 or*	Argumentation	3
**Philosophy 3*	History of Education	3
Political Science 1	Political Economy	3

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

Sophomore Year.

FIRST SEMESTER.

‡*Chemistry 4*	Qualitative Chemical Analysis	3
Drawing 5	Descriptive Geometry (first division), (first eight weeks)	1

*Elective. Chemical Seniors must elect either English 6 or Philosophy 3.

†Given in alternate years.

‡Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

Drawing 6a	Elementary Machine Drawing (first division), (last nine weeks)	1½
Drawing 6b	Elementary Machine Drawing (second division)	2
German 3	German Prose of the Nineteenth Century	3
Mathematics 5	Analytical Geometry	5
Machine Design 1	Mechanism	3
Military Science 3	Drill	1
Military Science 11	Military Primer	1
Physics 1	Mechanics and Heat	3
‡*Shop Work 3*	Forging (first division)	2

SECOND SEMESTER.

Drawing 8	Machine Drawing	2½
German 4	Scientific German	3
Mathematics 6	Calculus	5
Machine Design 2	Mechanism and Elementary Machine Design	3
Military Science 4	Drill	1
Military Science 12	Military Map Reading and Sketching	1
Physics 2	Light, Sound and Electricity	3
Shop Work 4	Machine Work	2½

ELECTRICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

Elect. Engineering 1	Dynamo Electric Machinery	3
Machine Design 3	Theoretical Mechanics	4
Machine Design 4	Designing and Drawing	3
Mech. Engineering 7	Thermodynamics	3
Mech. Engineering 9	Mechanical Laboratory	2
Physics 3	Physical Measurements	1
Physics 4	Physical Laboratory	3
Shop Work 9	General Machine Work	1

SECOND SEMESTER.

Elect. Engineering 2	Dynamo Electric Machinery	3
Elect. Engineering 4	Electrical Laboratory	3
Machine Design 5	Theoretical Mechanics	4
Mech. Engineering 8	Thermodynamics	3
Mech. Engineering 10	Mechanical Laboratory	2
Physics 5	Physical Laboratory	4
Shop Work 10	Manufacturing	1

Senior Year.

FIRST SEMESTER.

Elect. Engineering 11	Elect. Engineering Practice	4
Elect. Engineering 13	Electrical Railways	2
Elect. Engineering 15	Electrical Laboratory	4

‡ Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

Elect. Engineering 23	Contracts and Specifications	1
Mech. Engineering 11	Hydraulics	4
Mech. Engineering 12	Materials of Engineering	2
Mech. Engineering 13	Mechanical Laboratory	3

SECOND SEMESTER.

Elect. Engineering 12	Elect. Engineering Practice	4
Elect. Engineering 16	Electrical Laboratory	4
Elect. Engineering 18	Thesis	3
Elect. Engineering 25	Design of Electrical Machinery	3
Mech. Engineering 19	Economics of Engineering	3
Political Science 1	Political Economy	3

MECHANICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

Elect. Engineering 1	Dynamo Electric Machinery	3
Machine Design 3	Theoretical Mechanics	4
Machine Design 4	Designing and Drawing	3
Mech. Engineering 7	Thermodynamics	3
Mech. Engineering 9	Mechanical Laboratory	2
Physics 3	Physical Measurements	1
Physics 4	Physical Laboratory	3
Shop Work 9	General Machine Work	1

SECOND SEMESTER.

Elect. Engineering 2	Dynamo Electric Machinery	3
Elect. Engineering 17	Electrical Laboratory	1
Machine Design 5	Theoretical Mechanics	4
Machine Design 6	Shop Machinery	3
Mech. Engineering 8	Thermodynamics	3
Mech. Engineering 10	Mechanical Laboratory	2
Physics 5	Physical Laboratory	4
‡*Shopwork 10*	Manufacturing	1

Senior Year.

FIRST SEMESTER.

Elect. Engineering 19	Dynamo Electric Machinery	3
Elect. Engineering 23	Contracts and Specifications	1
Elect. Engineering 24	Electrical Laboratory	2
Mech. Engineering 11	Hydraulics	4
Mech. Engineering 12	Materials of Engineering	2
Mech. Engineering 13	Mechanical Laboratory	3
Mech. Engineering 15	Heat Engine Design	5

SECOND SEMESTER.

Elect. Engineering 20	Dynamo Electric Machinery	2
Mech. Engineering 14	Mechanical Laboratory	3
Mech. Engineering 16	Shop Design and Equipment	4
Mech. Engineering 17	Power Plant Design	2
Mech. Engineering 19	Economics of Engineering	3
Political Science 1	Political Economy	3
Thesis		3

‡ Not a required subject.

AGRICULTURAL COURSE—FRESHMAN YEAR

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday	English 1	Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1b
Tuesday		French 1 German 1	Mathematics 1	Military Sci. 9	Drawing 1b
Wednesday	English 1		Chemistry 1	Horticulture 1 (First eight weeks)	Shop Work 13 (Last nine weeks)
Thursday		French 1 German 1	Mathematics 1	Mathematics 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Friday	English 1	Chemistry 1	Chemistry 1	Military Sci. 1	Horticulture 1 (First eight weeks) Shop Work 13 Last nine weeks)
Saturday		French 1 German 1	Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday	English 2		Chemistry 2	Military Sci. 2	Shop Work 14 (First nine weeks) Mathematics 4 (Last eight weeks)
Tuesday		French 2 German 2	Military Sci. 10	Mathematics 3 (First nine weeks)	Shop Work 14 (First nine weeks) Mathematics 4 (Last eight weeks)
Wednesday	English 2	Drawing 4	Drawing 4	Mathematics 3 (First nine weeks)	Drawing 4 (First nine weeks) Mathematics 4 (Last eight weeks)
Thursday		French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	Horticulture 2
Friday	English 2		Chemistry 2	Military Sci. 2	Drawing 4 (First nine weeks) Mathematics 4 (Last eight weeks)
Saturday	Horticulture 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	

Mathematics 2, First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	* Philosophy 1	Military Sci. 11	Botany 1	Military Sci. 3	Chemistry 4
	Tuesday	Zoölogy 1	* Philosophy 1	Physics 1	* German 3	Chemistry 4
	Wednesday	Animal Husb. 1		Botany 1	Botany 1	Chemistry 4
	Thursday		* Philosophy 1	Physics 1	* German 3	Animal Husb. 1
	Friday	Animal Husb. 1		Zoölogy 1	Military Sci. 3	Zoölogy 1
	Saturday	Botany 1	Botany 1	Physics 1	* German 3	
SECOND SEMESTER	Monday	Chemistry 6	Zoölogy 2	Botany 2	Military Sci. 4	Horticulture 3
	Tuesday	Political Sci. 1	Chemistry 6	Physics 2	* German 4	Botany 2
	Wednesday	Physics 8	Physics 8	Physics 8	Military Sci. 12	Botany 2
	Thursday	Political Sci. 1	Chemistry 6	Physics 2	* German 4	
	Friday		Horticulture 3	Zoölogy 2	Military Sci. 4	Zoölogy 2
	Saturday	Political Sci. 1	Horticulture 3	Physics 2	* German 4	

* Elective.

AGRICULTURAL COURSE—JUNIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	*Horticulture 8	Forestry 1	Zoölogy 4	*Military Sci. 5	Botany 3
	Tuesday	Botany 3	Forestry 1	Dairying 1	Agronomy 1	*Animal Husb. 5 *Horticulture 4
	Wednesday	Botany 3	Botany 3	Zoölogy 4	*Horticulture 4	Forestry 1
	Thursday	Dairying 1	Dairying 1	Dairying 1	Agronomy 1	Zoölogy 4
	Friday	*Horticulture 8	*Animal Husb. 5	Dairying 1	*Military Sci. 5	Agronomy 1
	Saturday	Dairying 1	Dairying 1	Dairying 1	*Military Sci. 13	
SECOND SEMESTER	Monday	*Horticulture 5	*Dairying 3 *Horticulture 5	Geology 2	*Military Sci. 6	Agronomy 2
	Tuesday	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4	Agronomy 2	*Botany 5 *Botany 10 *Dairying 3 *Zoölogy 6 *Zoölogy 7
	Wednesday	*Horticulture 5	*Horticulture 5	Animal Husb. 3	Agronomy 2	*Animal Husb. 6 *Horticulture 7 *Zoölogy 6 *Zoölogy 7
	Thursday	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	Animal Husb. 3	Geology 2	Geology 2
	Friday	*Botany 5 *Botany 10	*Botany 5 *Botany 10	*Animal Husb. 4	*Military Sci. 6	Animal Husb. 3
	Saturday	*Botany 5 *Botany 10	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4 *Zoölogy 6 *Zoölogy 7	*Military Sci. 14	

For hours of courses not scheduled, see instructor.
*Elective. †Required if not previously taken.

AGRICULTURAL COURSE—SENIOR YEAR

	Day	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	Zoölogy 8	*Animal Husb. 7	*Forestry 3 *Horticulture 9	*Military Sci. 7 *Horticulture 11	Agronomy 5
	Tuesday		*Animal Husb. 7	History 5	*Horticulture 11	*Agronomy 3 *Forestry 2
	Wednesday	Zoölogy 8	Meteorology 1	*Forestry 3 *Horticulture 9	*Agronomy 3 *Dairying 6	*Animal Husb. 7 *Botany 6 *Botany 9
	Thursday	*Botany 6 *Botany 9	*Botany 6 *Botany 9	History 5	*Forestry 2	*Agronomy 3 *Horticulture 11
	Friday	Zoölogy 8	Meteorology 1	*Botany 6 *Botany 9	*Military Sci. 7 *Horticulture 11	*Dairying 6 *Horticulture 9
	Saturday	*Dairying 6 *Forestry 3	*Dairying 6 *Forestry 3	History 5	*Forestry 2	
SECOND SEMESTER	Monday	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Military Sci. 8 *Agronomy 4	*Dairying 2 *Horticulture 14
	Tuesday	*Horticulture 6	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Dairying 2	*Animal Husb. 2 *Botany 5 *Botany 10
	Wednesday	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Animal Husb. 2 *Horticulture 14	*Dairying 5
	Thursday	*Dairying 5 *Horticulture 12 *Horticulture 13	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Agronomy 4	*Dairying 2 *Horticulture 6
	Friday	*Botany 5 *Botany 10	*Botany 5 *Botany 10	History 6	*Military Sci. 8 *Horticulture 14	*Dairying 5
	Saturday	*Botany 5 *Botany 10 *Horticulture 12 *Horticulture 13	*Horticulture 12 *Horticulture 13	English 6		

*Elective.

For hours of courses not scheduled see instructor.

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	English 1	Mathematics 1	* Botany 1 * Chemistry 1	Military Sci. 1	* Drawing 1b * Latin 1
	Tuesday	* Zoölogy 1	French 1 German 1	Mathematics 1	Military Sci. 9	* Drawing 1b * Latin 1
	Wednesday	English 1	History 1 or History 3	* Botany 1 * Chemistry 1	* Botany 1	* Latin 1 * Shopwork 1b
	Thursday		French 1 German 1	Mathematics 1	Mathematics 1	History 1 or History 3
	Friday	English 1	History 1 or History 3	* Chemistry 1 * Zoölogy 1	Military Sci. 1	* Shopwork 1b * Zoölogy 1
	Saturday	* Botany 1	* Botany 1 French 1 German 1	Mathematics 1	Mathematics 1	
SECOND SEMESTER	Monday	English 2	* Philosophy 2	* Botany 2 * Chemistry 2	Military Sci. 2	Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
	Tuesday	* Latin 2	French 2 German 2	Military Sci. 10	Mathematics 3 (First nine weeks)	* Botany 2 Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
	Wednesday	English 2	History 2 or History 4	* Philosophy 2	Mathematics 3 (First nine weeks)	* Botany 2 Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
	Thursday	* Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	History 2 or History 4
	Friday	English 2	History 2 or History 4	* Chemistry 2	Military Sci. 2	Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
	Saturday	* Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	

* Elective

Mathematics 2, First Semester, hours to be arranged.

ARTS AND SCIENCE COURSE—SOPHOMORE YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Philosophy 1	Military Sci. 11	* Botany 1	Military Sci. 3	* Chemistry 4 * English 3
	Tuesday	* Mathematics 5 * Zoölogy 1	Philosophy 1	* Physics 1	* German 3	* Chemistry 4 * English 3
	Wednesday	* Latin 3 * Mathematics 5	* History 1 * History 3	* Botany 1	* Botany 1	* Chemistry 4 * English 3
	Thursday	* Latin 3 * Mathematics 5	Philosophy 1	* Physics 1	* German 3	* History 1 * History 3
	Friday	* Latin 3 * Mathematics 5	* History 1 * History 3	* Zoölogy 1	Military Sci. 3	* Zoölogy 1
	Saturday	* Botany 1 * Mathematics 5	* Botany 1 * Mathematics 5	* Physics 1	* German 3	
SECOND SEMESTER	Monday	* Latin 4	* Philosophy 2 * Zoölogy 2	* Botany 2	Military Sci. 4	
	Tuesday	* Mathematics 6	Political Sci. 1	English 6 * Physics 2	* German 4	* Botany 2
	Wednesday	* Latin 4 * Mathematics 6	* History 2 * History 4	* Botany 2 * Philosophy 2	Military Sci. 12	* Botany 2
	Thursday	* Mathematics 6	Political Sci. 1	* English 6 * Physics 2	* German 4	* History 2 * History 4
	Friday	* Latin 4 * Mathematics 6	* History 2 * History 4	* Zoölogy 2	Military Sci. 4	* Zoölogy 2
	Saturday	* Mathematics 6	Political Sci. 1	* English 6 * Physics 2	* German 4	

* Elective.

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday		French 3	Zoölogy 4	Military Sci. 5 Political Sci. 3	Chemistry 4 English 3 Spanish 1
	Tuesday	Philosophy 4	Political Sci. 2	History 5	English 5	Chemistry 4 English 3 Spanish 1
	Wednesday		French 3	Zoölogy 4	Political Sci. 3	Botany 6 Botany 9 Chemistry 4 English 3 Spanish 1
	Thursday	Botany 6 Botany 9 Philosophy 4	Botany 6 Botany 9 Political Sci. 2	History 5	English 5	Zoölogy 4
	Friday		French 3	Botany 6 Botany 9	Military Sci. 5 Political Sci. 3	English 3
	Saturday	Philosophy 4	Political Sci. 2	History 5	Military Sci. 13 English 5	
SECOND SEMESTER	Monday	Chemistry 6 Geology 1	French 4 Geology 1	Geology 2 History 6	Military Sci. 6 Philosophy 5	Spanish 2
	Tuesday		Chemistry 6 Philosophy 3	English 6	Political Sci. 4 Political Sci. 5	Botany 5 Botany 10 English 4 Spanish 2
	Wednesday		French 4	History 6	Philosophy 5	Spanish 2
	Thursday		Chemistry 6 Philosophy 3	English 6	Geology 2 Political Sci. 4 Political Sci. 5	English 4 Geology 2
	Friday	Botany 5 Botany 10 Geology 1	Botany 5 Botany 10 French 4 Geology 1	History 6	Military Sci. 6 Philosophy 5	English 4
	Saturday	Botany 5 Botany 10	Philosophy 3	English 6	Military Sci. 14 Political Sci. 4 Political Sci. 5	

For hours of courses not scheduled, see instructor.
All elective.

ARTS AND SCIENCE COURSE—SENIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	German 5 Philosophy 1 Zoölogy 8	Philosophy 9	French 5	Military Sci. 7 Political Sci. 3	History 7 Spanish 1
	Tuesday	Philosophy 4	Political Sci. 2 Philosophy 1	French 9	English 5	Spanish 1
	Wednesday	German 5 Zoölogy 8	Meteorology 1 Philosophy 9	French 5	Political Sci. 3	Botany 6 Botany 9 History 7 Spanish 1
	Thursday	Botany 6 Botany 9 Philosophy 4	Botany 6 Botany 9 Political Sci. 2 Philosophy 1	French 9 German 9	English 5	
	Friday	German 5 Zoölogy 8	Meteorology 1 Philosophy 9	Botany 6 Botany 9 French 5	Military Sci. 7 Political Sci. 3	History 7
	Saturday	Philosophy 4	Political Sci. 2	German 9	English 5	
SECOND SEMESTER	Monday	Philosophy 6	Mathematics 9	French 6 Geology 2	Philosophy 5 English 7 Military Sci. 8	Spanish 2
	Tuesday	German 6	Philosophy 3	French 10	Political Sci. 4 or Political Sci. 5	Botany 5 Botany 10 English 4 Spanish 2
	Wednesday	Philosophy 6	Mathematics 9	French 6	Philosophy 5 English 7	Spanish 2
	Thursday	German 6	Philosophy 3	German 10 French 10	Geology 2 Political Sci. 4 or Political Sci. 5	English 4 Geology 2
	Friday	Botany 5 Botany 10 Philosophy 6	Botany 5 Botany 10	French 6	Military Sci. 8 Philosophy 5 English 7	English 4 English 7
	Saturday	Botany 5 Botany 10 German 6	Philosophy 3	German 10	Political Sci. 4 or Political Sci. 5	

For hours of courses not scheduled, see instructor.
All elective.

‡ ENGINEERING COURSES—FRESHMAN YEAR

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday....		English 1 (Div. 1) Mathematics 1 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Military Sci. 1 (Div. 1 & 2)	Drawing 1a (Div. 2) Shopwork 1 (Div. 1)
Tuesday...	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 2) Military Sci. 9 (Div. 1)	Mathematics 1 (Div. 1)	Drawing 1a (Div. 2) Shopwork 1 (Div. 1)
Wednesday		English 1 (Div. 1) Military Sci. 9 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Mathematics 1 (Div. 1)	Drawing 1a (Div. 1 or 2) Shopwork 1 (Div. 1 or 2)
Thursday..	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1 (Div. 2)
Friday.....		English 1 (Div. 1)	Chemistry 1 (Div. 1 & 2)	Military Sci. 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1 (Div. 2)
Saturday..	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	

‡ Divisions for English 1, German 1, Mathematics 1 and Military Science 9 will be made by the Elective Committee. Divisions for Drawing 1a and Shopwork 1 will be made by agreement of instructors concerned. Hours for Mathematics 2 will be arranged by instructor.

‡ ENGINEERING COURSES—FRESHMAN YEAR

SECOND SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday....	German 2 (Div. 1) Military Sci.10(Div. 2)	English 2 (Div. 1)	Chemistry 2 (Div. 1 and 2)	Military Sci. 2 (Div. 1 & 2)	† Chemistry 4 (Div. 1) (First nine weeks) † Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Tuesday....	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1) (First nine weeks)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 2) (First nine weeks) Military Sci. 10 (Div. 1)	† Chemistry 4 (Div. 1) (First nine weeks) † Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Wednesday	† Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) Mathematics 3 (Div. 1) (First nine weeks)	Mathematics 3 (Div. 2) (First nine weeks)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Thursday..	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Friday.....	† Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	Chemistry 2 (Div. 1 & 2)	Military Sci. 2 (Div. 1 & 2)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Saturday...	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) First nine weeks)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks	

‡ Divisions for English 2, German 2, Mathematics 3, and Military Science 10 will be made by the Elective Committee.
† For Divisions in these subjects, see note at bottom of page 79.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Military Sci. 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Tuesday	Mathematics 5	Physics 1	†Physics 1	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Wednesday	Mathematics 5	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
	Thursday	Mathematics 5	Mathematics 5	Military Sci. 11	German 3	Drawing 7
	Friday	Mathematics 5	Physics 1		Military Sci. 3	Drawing 7
	Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	
SECOND SEMESTER	Monday	Chemistry 6			Military Sci. 4	Chemistry 11
	Tuesday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
	Wednesday	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Thursday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
	Friday	Mathematics 6	Mathematics 6	Military Sci. 12	Military Sci. 4	Chemistry 11
	Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

†This hour may be used in place of the hours scheduled on Monday and Tuesday.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Physics 6	Chemistry 19	Machine Design 3	*Military Sci. 5	Physics 6
	Tuesday	Chemistry 7	Chemistry 21	Chemistry 12	Chemistry 12	Chemistry 12
	Wednesday	Chemistry 7	Chemistry 19	Machine Design 3	Chemistry 12	Chemistry 12
	Thursday	Machine Design 3	Chemistry 21	Chemistry 8	Chemistry 8	Chemistry 8
	Friday	Chemistry 12	Chemistry 12	Chemistry 12	*Military Sci. 5	Chemistry 8
	Saturday		Machine Design 3		*Military Sci. 13	
SECOND SEMESTER	Monday	Geology 1	Geology 1	Machine Design 5	*Military Sci. 6	Chemistry 13
	Tuesday	Machine Design 5		Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
	Wednesday	Machine Design 5	Chemistry 13	Chemistry 13	Chemistry 13	Physics 7
	Thursday	Chemistry 13	Chemistry 13	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Physics 7
	Friday	Geology 1	Geology 1	Physics 7	*Military Sci. 6	Physics 7
	Saturday	Chemistry 13	Chemistry 13	Machine Design 5	Chemistry 14 Chemistry 15 Chemistry 22 *Military Sci. 14	

*Elective.

CHEMICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER

Day	8–9	9–10	10–11	11–12	P. M.
Monday	Chemistry 23	Chemistry 23	Chemistry 23	*Military Sci. 7 †Chemistry 23	Chemistry 23
Tuesday	Hi He Elect. Eng. 21	Chemistry 21	He Elect. Eng. 21	He Elect. Eng. 21	Chemistry 23
Wednesday	Shopwork 15	Shopwork 15	Shopwork 15	Mech. Eng. 7	Chemistry 23
Thursday	Chemistry 23	Chemistry 21	Chemistry 23	Chemistry 23	Chemistry 23
Friday	Hi Elect. Eng. 21	Mech. Eng. 7	Chemistry 23	*Military Sci. 7 †Chemistry 23	Chemistry 23
Saturday	Mech. Eng. 7	Chemistry 16	Chemistry 16	Chemistry 16	

SECOND SEMESTER

Monday	Chemistry 24	Chemistry 24	Chemistry 24	*Military Sci. 8 †Chemistry 24	Chemistry 24
Tuesday	Political Sci. 1	Elect. Eng. 22	English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Wednesday	Elect. Eng. 22	Elect. Eng. 22	Chemistry 24	Chemistry 24	Chemistry 24
Thursday	Political Sci. 1		English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Friday	Elect. Eng. 22	Chemistry 24	Chemistry 24	*Military Sci. 8 †Chemistry 24	Chemistry 24
Saturday	Political Sci. 1		English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	

* Elective.

† Hours to be arranged for students electing Military Science 7 and 8.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES—SOPHOMORE YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Military Sci. 11	Machine Design 1	Physics 1 (Div. 1)	Military Sci. 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
	Tuesday	Mathematics 5	Physics 1 (Div. 2)	† Physics 1 (Div. 1 & 2)	German 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
	Wednesday	Mathematics 5	Machine Design 1		Physics 1 (Div. 1)	Drawing 5 (Div. 1) (First eight weeks) Chemistry 4 (Div. 2)
	Thursday	Mathematics 5	Mathematics 5	Military Sci. 11	German 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a (Last nine weeks) Drawing 6b
	Friday	Mathematics 5	Physics 1 (Div. 2)	Machine Design 1	Military Sci. 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a (Last nine weeks) Drawing 6b
	Saturday	Mathematics 5	Mathematics 5	Physics 1 (Div. 1 & 2)	German 3	
SECOND SEMESTER	Monday	Machine Design 2	Machine Design 2	Machine Design 2	Military Sci. 4	Shopwork 4
	Tuesday	Mathematics 6	Machine Design 2	Physics 2 (Div. 1 & 2)	German 4	Shopwork 4
	Wednesday	Mathematics 6	Machine Design 2	Military Sci. 12 (Div. 1)	Physics 2 (Div. 2)	Drawing 8 Shopwork 4
	Thursday	Mathematics 6	Physics 2 (Div. 1)	† Physics 2 (Div. 1 & 2)	German 4	Drawing 8
	Friday	Mathematics 6	Mathematics 6	Military Sci. 12 (Div. 2)	Military Sci. 4	Drawing 8
	Saturday	Mathematics 6	Mathematics 6	Physics 2 (Div. 1 & 2)	German 4	

† This hour may be used in place of the hours scheduled on Monday and Tuesday.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Physics 3	He Elect. Eng. 1	Machine Design 3	* Military Sci. 5	Physics 4
	Tuesday		Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
	Wednesday		He Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shopwork 9
	Thursday	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
	Friday		Mech. Eng. 7	He Elect. Eng. 1	* Military Sci. 5	Mech. Eng. 9
	Saturday	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	* Military Sci. 13 Physics 4	
SECOND SEMESTER	Monday	* Elect. Eng. 6	Hi Elect. Eng. 2	Machine Design 5	* Military Sci. 6	Hi He Elect. Eng. 4
	Tuesday	Machine Design 5	Shopwork 10	Shopwork 10	Shopwork 10	Mech. Eng. 10
	Wednesday	Machine Design 5	Hi Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
	Thursday	Hi He Elect. Eng. 4	Hi He Elect. Eng. 4	Hi He Elect. Eng. 4	Mech. Eng. 8	Physics 5
	Friday	Mech. Eng. 10	Mech. Eng. 8	Hi Elect. Eng. 2	* Military Sci. 6	Physics 5
	Saturday			Machine Design 5	* Military Sci. 14	

* Elective.

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Elect. Eng. 15		Mech. Eng. 11	* Military Sci. 7	Mech. Eng. 13
	Tuesday	Mech. Eng. 12		Elect. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
	Wednesday	Mech. Eng. 13	Mech. Eng. 11	Elect. Eng. 11		
	Thursday	Mech. Eng. 12	Elect. Eng. 11	Mech. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
	Friday			Mech. Eng. 11	* Military Sci. 7	
	Saturday	* Elect. Eng. 23	Elect. Eng. 11		* Military Sci. 15	
SECOND SEMESTER	Monday	Mech. Eng. 19	Elect. Eng. 12	Elect. Eng. 18	* Military Sci. 8	Elect. Eng. 18
	Tuesday		Political Sci. 1	Elect. Eng. 25	Elect. Eng. 16	Elect. Eng. 16
	Wednesday	Elect. Eng. 18	Elect. Eng. 18	Elect. Eng. 12	Mech. Eng. 19	Elect. Eng. 25
	Thursday		Political Sci. 1		Elect. Eng. 25	Elect. Eng. 16
	Friday		Elect. Eng. 12	Mech. Eng. 19	* Military Sci. 8	Elect. Eng. 18
	Saturday	Elect. Eng. 12	Political Sci. 1		* Military Sci. 16	

* Elective.

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Physics 3	Elect. Eng. 1	Machine Design 3	* Military Sci. 5	Physics 4
	Tuesday		Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
	Wednesday		Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shopwork 9
	Thursday	Machine Design 8	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
	Friday		Mech. Eng. 7	Elect. Eng. 1	* Military Sci. 5	Mech. Eng. 9
	Saturday	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	* Military Sci. 13 Physics 4	
SECOND SEMESTER	Monday	Machine Design 6	Elect. Eng. 2	Machine Design 5	* Military Sci. 6	Machine Design 6
	Tuesday	Machine Design 5	* Shopwork 10	* Shopwork 10	* Shopwork 10	Mech. Eng. 10
	Wednesday	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
	Thursday	Machine Design 6	Machine Design 6	Machine Design 6	Mech. Eng. 8	Physics 5
	Friday	Mech. Eng. 10	Mech. Eng 8	Elect. Eng. 2	* Military Sci. 6	Physics 5
	Saturday	Elect. Eng. 17	Elect. Eng. 17	Machine Design 5	* Military Sci. 14	

* Elective.

MECHANICAL ENGINEERING COURSE—SENIOR YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	Mech. Eng. 15	Elect. Eng. 19	Mech. Eng. 11	*Military Sci. 7	Mech. Eng. 13
	Tuesday	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15
	Wednesday	Mech. Eng. 13	Mech. Eng. 11		Elect. Eng. 19	
	Thursday	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 11		
	Friday		Elect. Eng. 19	Mech. Eng. 11	*Military Sci. 7	Elect. Eng. 24
	Saturday	Elect. Eng. 23	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	
SECOND SEMESTER	Monday	Mech. Eng. 19		Elect. Eng. 20	*Military Sci. 8	Thesis
	Tuesday	Political Sci. 1	Mech. Eng. 17	Mech. Eng. 14		Thesis
	Wednesday	Elect. Eng. 20		Mech. Eng. 16	Mech. Eng. 19	Mech. Eng. 14
	Thursday	Political Sci. 1	Thesis	Thesis	Thesis	Mech. Eng. 16
	Friday	Mech. Eng. 16	Mech. Eng. 16	Mech. Eng. 19	*Military Sci. 8	Mech. Eng. 16
	Saturday	Political Sci. 1	Mech. Eng. 17			

* Elective.

EXAMINATIONS—FIRST SEMESTER

Seniors, Juniors, Sophomores, Freshmen

	Monday, January 31	Tuesday, February 1	Wednesday, February 2	Thursday, February 3	Friday, February 4
8 to 10 A. M.	Chemistry 7 Forestry 3 Horticulture 1 Latin 1 Latin 3	Elect. Eng. 13 German 1 Physics 3 Zoölogy 8	Animal Husb. 1 Forestry 2 History 1 History 3 Mech. Eng. 12	Dairying 1 Elect. Eng. 1 History 5 History 11 Military Sci. 9	Elect. Eng. 19 French 5 Military Sci. 11 Physics 4
10 to 12 A. M.	Elect. Eng. 11 English 3 Horticulture 9 Political Sci. 3	German 3 German 5 Horticulture 8	Agronomy 3 Elect. Eng. 23 French 3 Military Sci. 15	Elect. Eng. 21 Philosophy 4	French 1 Geology 3 Military Sci. 13 Philosophy 1
1.30 P. M.	English 1 Mathematics 5 Mech. Eng. 9 Political Sci. 2	Botany 1 Botany 6 Botany 9 History 7 Machine Design 3 Mathematics 7 Mech. Eng. 11	Animal Husb. 7 Horticulture 4 Mathematics 2 Mech. Eng. 7 Meteorology 1 Philosophy 7 Zoölogy 4	Chemistry 1 Forestry 1 Machine Design 1 Mech. Eng. 15 Spanish 1	Agronomy 1 Chemistry 21 Machine Design 4 Mathematics 1 Mech. Eng. 13 Physics 1 Zoölogy 1 Zoölogy 10

Examinations in subjects not scheduled are arranged by instructors.

EXAMINATIONS—SECOND SEMESTER

Seniors

	Saturday, June 4	Monday, June 6	Tuesday, June 7
8 to 10 A. M.	Elect. Eng. 20 Elect. Eng. 22 German 6 Horticulture 12 Horticulture 13	Agronomy 6 Agronomy 7 Chemistry 24 Mech. Eng. 16 Philosophy 6	English 6 French 6 Horticulture 6
10 to 12 A. M.	Chemistry 22 Mathematics 9 Mech. Eng. 14	Elect. Eng. 25 English 7 History 6	Horticulture 14 Philosophy 5 Political Sci. 1
1.30 P. M.		Botany 6 Botany 9 Chemistry 14 Elect. Eng. 12 Horticulture 10 Mech. Eng. 17 Philosophy 3	Animal Husb. 2 Chemistry 15 Mech. Eng. 19 Political Sci. 4. Political Sci. 5.

Examinations in subjects not scheduled are arranged by instructor. Senior examinations begin upon the last Saturday but one of the term.

EXAMINATIONS—SECOND SEMESTER

Juniors, Sophomores, Freshmen

	Wednesday, June 8	Thursday, June 9	Friday, June 10	Saturday, June 11	Monday, June 13
8 to 10 A. M.	Elect. Eng. 6 German 2 Horticulture 5	Dairying 3 Horticulture 2 Latin 2 Latin 4 Mech. Eng. 1	Agronomy 2 History 2 History 4	Animal Husb. 6 Physics 5 Zoölogy 12	Animal Husb. 3 Philosophy 2
10 to 12 A. M.	Horticulture 3 Spanish 2	Botany 2 Mech. Eng. 10	Botany 5 Botany 10 Physics 6	French 2 English 4	Chemistry 6 Zoölogy 6 Zoölogy 7
1.30 P. M.	Horticulture 7 German 4 Machine Design 5 Military Sci. 10	Geology 1 Machine Design 6 Mathematics 4 Mathematics 6	Chemistry 2 French 4 Geology 2 Mech. Eng. 8 Military Sci. 12		Animal Husb. 4 Elect. Eng. 2 English 2 Mathematics 8 Physics 2

Examinations in subjects not scheduled are arranged by instructors. These examinations end upon the Monday before Commencement.

TWO YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity for those students to secure a training for their life work who do not have the time, money or preparation to take a four year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

The course was recently shortened from thirty-five to thirty weeks, so as to enable the students to get home for the spring work on the farm or to accept wage positions for the summer. This short school year also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year.

The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies, so that it is possible for students to specialize in animal industry, dairying, forestry or greenhouse work. Ten hours a week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of school. Applicants who are over eighteen years of age will be admitted without examination.

OPENING.

The course for the year will open Wednesday, September 15, 1909, and close Wednesday, May 4, 1910. A Thanksgiving vacation of five days, a Christmas vacation of two weeks and a spring vacation of five days will be given.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations they secure. The total average expense for the year is not far from $250. Many students by working for their board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding $150.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

31. Elementary Agriculture.

Text-book and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and their relations to each other; the latter half of the semester will be devoted to a study of the breeds of cattle, with practical demonstrations in judging the different breeds. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Farm Equipment and Farm Crops.

This course is similar to Agronomy 1, although less detailed. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Soils and Soil Physics.

This course is similar to Agronomy 2, but involves less mathematics and physics. For Two Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

34. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures and chemical fertilizers, the care and application of manures, the home-mixing of fertilizers and the modifications required by different soils and crops. For Two Year Agricultural Students, Second Year. *Two exercises per week. 2d S.*

ANIMAL HUSBANDRY.

ASSO. PROF. ARKELL, ASST. PROF. MCNUTT.

31. Types and Breeds of Live Stock.

Similar to Animal Husbandry 1. For Two Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

32. Sheep Raising.

Lectures and recitations upon the breeds of sheep; adaptability to this section; care and management; fitting for the shows and feeding for market purposes; the raising of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Feeds and Feeding.

Similar to Animal Husbandry 3. For Two Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

34. Principles of Breeding.

Similar to Animal Husbandry 2. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2d S.

35. Veterinary Science.

Similar to Animal Husbandry 4. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2d S.

36. Poultry.

Similar to Animal Husbandry 5. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

BOTANY.

MR. STEWART.

31. Elements of Botany.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations and laboratory work. For Two Year Agricultural Students, First Year. *Three exercises per week. 1st S.*

32. Plant Diseases.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 1.

Three exercises per week. 2d S.

CHEMISTRY.

31. Elementary Applications.

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two Year Agricultural Students, First Year. *Two exercises per week. 2d S.*

DAIRYING.

PROF. RASMUSSEN.

31. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two Year Agricultural Students, First Year.

Three exercises per week. 2d S.

32. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Technology of Milk.

Same as Course 3. Elective for Two Year Agricultural Students, Second Year. *Two exercises per week. 2d S.*

DRAWING.

31. Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

ENGLISH.

MR. DAVID.

31. Grammar and Elementary Composition.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Grammar and Composition.

This is a continuation of English 31. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 31.

Three exercises per week. 2d S.

FORESTRY.

PROF. PICKETT.

31. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two Year Agricultural Students, First Year.

Two exercises per week. 2d S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. BUNTING.

31. Vegetable Gardening. Mr. Bunting.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Fruit Growing.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, pruning, fertilizing, picking, packing, storing and marketing. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Greenhouse Management. Mr. Lumsden.

Combined lecture, demonstration and laboratory course in greenhouse management. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

34. Home Decoration. Mr. Lumsden.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2d S.

MATHEMATICS.

MR. SLATE.

31. Arithmetic and Bookkeeping.

A review of arithmetic, the first twelve weeks, and farm bookkeeping, the last six weeks. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. EDGERLY.

1. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 1st S.

2. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2d S.

3. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

4. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Two Year Agricultural Students, First Year. *One exercise per week. 1st S.*

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Two Year Agricultural Students, First Year.

One exercise per week. 2d S.

17. Lectures on Advance Guards, Outposts, etc.

For Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

18. Lectures on Advance Guards, Outposts, etc.

Continuation of Military Science 17. For Two Year Agricultural Students, Second Year. *One exercise per week. 2d S.*

PHYSICS.

PROF. NESBIT.

31. Elementary Physics.

For Two Year Agricultural Students, Second Year.

Four exercises per week. 1st S.

SHOP WORK.

31. Wood Work.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2d S.

32. Iron Work. Mr. Brown.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

ZOOLOGY.

31. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Elementary Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and means of controlling them. For Two Year Agricultural Students, First Year.

Three exercises per week. 2d S.

COURSES OF STUDY AND SCHEDULE OF HOURS.

First Year.

	FIRST SEMESTER.	Credit hours.
Agronomy 31	Elementary Agriculture	3
Botany 31	Elements of Botany	3
English 31	Grammar and Elementary Composition	3
Horticulture 31	Vegetable Gardening	3
Mathematics 31	Mathematics and Bookkeeping	3
Military Science 1	Drill	1
Military Science 9	Infantry Drill Regulations	1
Zoölogy 31	Vertebrate Anatomy and Physiology	3
	SECOND SEMESTER.	
Botany 32	Plant Diseases	3
Chemistry 31	Elementary Applications	2
Dairying 31	Milk and Milk Testing	3
English 32	Grammar and Composition	3
Forestry 31	Farm Forestry	2
Military Science 2	Drill	1
Military Science 10	Manual of Guard Duty	1
Shop Work 31	Wood Work	2
Zoölogy 32	Economic Entomology	3

Second Year.

FIRST SEMESTER.

Agronomy 32	Farm Equipment and Farm Crops	3
An. Husb. 31	Types and Breeds of Livestock...	3
**An. Husb. 32*	Sheep Raising	3
**An. Husb. 36*	Poultry	2
**Dairying 32*	Butter Making.....	3
Drawing 31	.....	1
Horticulture 32	Fruit Growing.....	3
**Horticulture 33*	Greenhouse Management.....	3
Military Science 3	Drill	1
Military Science 17	Advance Guards, Outposts, etc....	1
Physics 31	Elementary Physics.....	4

SECOND SEMESTER.

Agronomy 33	Soils and Soil Physics.....	3
Agronomy 34	Manures and Fertilizers.....	2
An. Husb. 33	Feeds and Feeding.....	3
**An. Husb. 34*	Principles of Breeding.....	3
**An. Husb. 35*	Veterinary Science.....	3
**Dairying 33*	Technology of Milk.....	2
**Forestry 32*	Aboriculture and Forestry.....	3
**Horticulture 34*	Home Decoration.....	3
Military Science 4	Drill	1
Military Science 18	Advance Guards, Outposts, etc....	1
Shop Work 32	Iron Work.....	2

*Elective. Elect any two each semester.

TWO YEAR COURSE IN AGRICULTURE—FIRST YEAR

	Day.	8-9	9-10	10-11	11-12	P. M.
FIRST SEMESTER	Monday	English 31	Agronomy 31	Mathematics 31	Military Sci. 1	Horticulture 31
	Tuesday		Military Sci. 9	Horticulture 31	Botany 31 (Div. 1 & 2)	Botany 31 (Div. 1) Zoölogy 31 (Div. 2)
	Wednesday	English 31	Agronomy 31	Mathematics 31	Zoölogy 31 (Div. 1 & 2)	Zoölogy 31 (Div. 1)
	Thursday		Horticulture 31		Zoölogy 31 (Div. 1 & 2)	Botany 31 (Div. 1)
	Friday	English 31	Agronomy 31	Mathematics 31	Military Sci. 1	Botany 31 (Div. 2)
	Saturday			Botany 31 (Div. 2)	Botany 31 (Div. 2)	
SECOND SEMESTER	Monday	English 32	Chemistry 31	Forestry 31	Military Sci. 2	Botany 32 (Div. 2) Shop 31 (Div. 1)
	Tuesday		Botany 32 (Div. 1) Shop 31 (Div. 2)	Botany 32 (Div. 1) Shop 31 (Div. 2)	Shop 31 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)
	Wednesday	English 32	Chemistry 31	Botany 32 (Div. 1) Shop 31 (Div. 2)	Botany 32 (Div. 1) Shop 31 (Div. 2)	Forestry 31
	Thursday	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Botany 32 (Div. 1 & 2)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)
	Friday	English 32	Military Sci. 10.	Dairying 31(Div. 1&2)	Military Sci. 2	Botany 32 (Div. 2) Shop 31 (Div. 1)
	Saturday	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Zoölogy 32 (Div. 1 & 2)	

TWO YEAR COURSE IN AGRICULTURE—SECOND YEAR

	Day	8–9	9–10	10–11	11–12	P. M.
FIRST SEMESTER	Monday	*An. Husb. 32 *Horticulture 33	Horticulture 32	*Dairying 32	Military Sci. 3	An. Husb. 31
	Tuesday	*Dairying 32	*Dairying 32	Agronomy 32	Physics 31	An. Husb. 36 *Horticulture 33
	Wednesday	*An. Husb. 32 *Horticulture 33	Horticulture 32	Physics 31	An. Husb. 31	Agronomy 32
	Thursday	*An. Husb. 32	*An. Husb. 32	Agronomy 32	Physics 31	*Dairying 32
	Friday	Military Sci. 17	*An. Husb. 36	An. Husb. 31	Military Sci. 3	Horticulture 32
	Saturday	Drawing 31	Drawing 31	Drawing 31	Physics 31	
SECOND SEMESTER	Monday	Agronomy 34	*Dairying 33	*Forestry 32	Military Sci. 4	*An. Husb. 35
	Tuesday	Military Sci. 18	*An. Husb. 35	Agronomy 33	*Horticulture 34	*Dairying 33 *Forestry 32
	Wednesday	Agronomy 34	Shop 32	Shop 32	Shop 32	Agronomy 33
	Thursday	*Horticulture 34	*An. Husb. 34 *Horticulture 34	Agronomy 33		An. Husb. 33
	Friday	An. Husb. 33	*An. Husb. 35 *Forestry 32		Military Sci. 4	*Horticulture 34 *An. Husb. 34
	Saturday	An. Husb. 33	*An. Husb. 34	Shop 32	Shop 32	

*Elective.

TEN WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

OPENING.

The Fifteenth Annual Dairy School of the New Hampshire College opens Tuesday, January 4, and closes Friday, March 11, 1910. Students should present themselves for registration at Thompson Hall the first day of the session. Lectures and laboratory work will begin the following day.

ADMISSION.

The school is open to men and women sixteen years of age and upward. No entrance examination is required. However, in order to make the best use of the instruction, the student should have a good common school education. The experiences of previous years have shown that the subject in which the student is most deficient is arithmetic, especially percentage and decimals. Both of these divisions of arithmetic are used to a large extent in solving problems in the creamery and also in computing rations for the dairy cow. It is, therefore, well for those planning to take the dairy course to review these subjects before entering. To be most benefited by the school, the students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition of five dollars is payable on registering, at the beginning of the term; other expenses, including books, white suits, and room and board for ten weeks, amount to approximately sixty dollars.

CERTIFICATES.

Students completing the required work of the dairy school and passing satisfactory examinations, will be given certificates.

AGRONOMY.

PROF. F. W. TAYLOR.

50. Forage and Silage Crops.

This course will consist of ten lectures upon forage and silage crops which are suited to New Hampshire conditions. The matter of varieties, preparation of the ground, time of seeding, amount of seed, harvesting and storing will be discussed. Soiling crops, the construction of silos and the growing of crops for the silo will be treated in as much detail as the

time allows. A laboratory period in corn judging and one in seed testing will be given.

51. Manures and Fertilizers.

This course will consist of eight lectures upon the constituents of farm manures and chemical fertilizers; the care and application of manure; the home mixing of fertilizers and the modifications for different soils and crops.

ANIMAL HUSBANDRY.

ASSO. PROF. T. R. ARKELL, ASST. PROF. J. C. MCNUTT.

42. Breeds of Dairy Cattle.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of cattle, with special reference to the selection of breeds and of individual animals for the herd. The practical work will consist of scoring and judging representatives of the various breeds of dairy cattle, and in tracing pedigrees of animals in the herd books of the different breeds. Two lectures and one judging period per week.

44. Diseases of Cattle.

This course will consist of lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed.

45. Feeds and Feeding.

Lectures and recitations upon the composition and digestibility of feeding stuffs. A daily study of the different grains and feeds, and their value in a dairy ration. Practice will be given in computing rations for the dairy cow.

Three exercises per week.

DAIRYING.

PROF. FRED RASMUSSEN, J. H. PIERPONT, BUTTER MAKER.

40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separators under varying conditions; cream ripening; churning, washing, marketing and scoring of butter.

41. Dairy Bacteriology.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work, such

as pasteurization, cream ripening, commercial starters, and deterioration of butter.

42. Dairy Laboratory.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency, and operation of the various machines used in the handling of milk and making of butter. The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practise testing milk, cream, skim-milk and butter-milk until fully competent to perform the work for himself or for others.

43. Market Milk.

A study of the value of milk as a food and its relation to public health. The production and handling of market milk, and of certified milk. Commercial milk inspection. Exercise will be given in the scoring of milk and cream, and in the scoring of dairies.

44. Milk Testing.

This course will consist of a study of the composition, the physical and chemical properties of milk, the various methods of sampling and testing milk and cream, the testing of dairy herds and organizing and operating cow test associations.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION

Most of the Agricultural Experiment Stations of the various states, including that of New Hampshire, were founded in 1888 by an act of Congress, approved March 2, 1887, known as the Hatch Act, in honor of its author. This act appropriated fifteen thousand dollars ($15,000) annually for the maintenance of an Agricultural Experiment Station in each state. This act provides:

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the

chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories." The act also provides that the results of such work shall be published in bulletins and reports.

A further endowment of the Experiment Stations to provide specifically for research work was made by the Adams Act, passed by Congress and approved March 16, 1906, which provided an increased annual appropriation which amounts to $13,000 for the current fiscal year, and increases to $15,000 in 1911–'12. This appropriation is specifically limited to the "necessary expenses of conducting original researches or experiments," and the rulings of the United States Department of Agriculture, which is vested with the supervision of the expenditures under this act, require that this appropriation be spent in fundamental investigations or researches to determine the underlying causes and principles of agricultural science, rather than for mere experiments to secure results of immediate practical application as contemplated under the Hatch Act appropriation. The purposes of the two acts are therefore supplementary but distinct.

The New Hampshire Agricultural Experiment Station is organized as a department of the New Hampshire College of Agriculture and Mechanic Arts, and is administered by a Board of Control, elected by its Board of Trustees.

The publications of the Station comprise 142 bulletins of the regular series and seven circulars. The bulletins are issued at irregular intervals and are sent to all residents of New Hampshire requesting them. Back numbers will be sent as long as the supply lasts.

The Station is prepared to give advice and assistance to the farmers of New Hampshire along the following lines:

The maintenance of soil fertility, including the rotation of

crops and the selection and use of manures and fertilizing materials.

The selection of varieties of grains, grasses and forage crops and methods of culture.

The selection of varieties of fruits and vegetables and the management of orchards.

The examination of seeds that are suspected of being unsound or adulterated; the identification of grasses, weeds and other plants; the prevention of fungous diseases of plants.

The identification of insects and the control of such as are injurious.

The feeding of animals, including calculation of rations and use of various feeding stuffs.

The methods of milk production, creamery and dairy methods and machinery and the scoring of dairy products.

The testing of milk to determine the value of dairy cows.

The planting and care of forest trees and the management of farm wood lots.

Any citizen of New Hampshire has the right to apply to the Station for such assistance as it can give, and all such requests will be given prompt attention.

COMMENCEMENT, 1909.

On Commencement Day, June 16, 1909, the following degrees were conferred:

BACHELORS OF SCIENCE.

Agriculture.

Falconer, John Ironside, Milford.
Parker, John Edward, Goffstown.
Townsend, Harry Storrs, Lebanon.

Arts and Science.

Brown, Edna Olive, Rye Beach.
Drew, Lucy Abby, Colebrook.
Stokes, Iva Dorothy, Epsom.
Wentworth, Stephen Neal, Rochester.

Chemical.

Ackerman, Laurence Day, Bristol.
Kennedy, Carl Duncan, Concord.
Langelier, Wilfred F., Nashua.
Pratt, Lester Albert, Alton Bay.
Sargent, George Jackman, Concord.
Trickey, John Paul, Rochester.

Electrical Engineering.

Campbell, William Smith, Hudson.
Ellsworth, Perry Foss, Meredith.
Goodwin, Otis Dana, Hollis.
Lougee, Bernard Ayers, Pittsfield.
McKone, Frank E., Dover.
Merrill, Maurice David, Andover.
Wendell, Chester Snell, Dover.

Mechanical Engineering.

Batchelder, Henry Edward, Exeter.
Kelley, Charles William, Barnstead.
Peaslee, Albert, Gonic.
Pike, Herbert Samuel, Lisbon.
Quimby, Harold Wallace, Northwood Narrows.
Richardson, Charles Sidney, Cornish Center.
Smalley, Lee Lawrence, Walpole.
Stevens, Ernest Morton, Andover.
Wilder, Howard Erwin, Amesbury, Mass.
Wilkins, Harold Hartshorn, Amherst.
Woods, Arthur Page, Bath.

Unclassified.

Wood, Chester Loring, Dudley, Mass.

Certificates.

Colburn, Luther Dodge, New Boston.
Hill, Claudian Frost, Wakefield, Mass.
Martin, Leslie Chapin, Chicopee, Mass.
Waite, Iru Merrill, Goffstown.

PRIZE RECORD FOR 1909.

BAILEY PRIZE—$10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

George Jackman Sargent, Concord.

ERSKINE MASON MEMORIAL PRIZE.

John Edward Parker, Goffstown.

CHASE-DAVIS MEMORIAL MEDALS.

Gold Medal.

Carl Duncan Kennedy, Concord.

Silver Medal.

Lester Albert Pratt, Alton Bay.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Carl Duncan Kennedy, Concord.

WINNERS OF INDIVIDUAL PRIZE DRILL.

Gold Medal.

John Hutchins Bachelder, '12, Concord.

Silver Medal.

Stephen DeMeritt, '12, Durham.

HONORABLE MENTION.

Alan Leighton, '12, Concord.

PRIZE SWORD—EXCELLENCE IN DRILL.

Harry Peach Corson, '10, Laconia.

Honorable Mention.

Clement Linwood Perkins, '10, Berwick, Me.

SENIORS REPORTED TO ADJUTANT-GENERAL, U. S. ARMY, FOR APTITUDE IN DRILL.

Carl Duncan Kennedy, Concord.
Harold Hartshorn Wilkins, Amherst.
John Paul Trickey, Rochester.

COLOR COMPANY—FIRST SEMESTER.

Company A.

VALENTINE SMITH SCHOLARSHIPS.

Edward D. French, '10.
Margaret DeMeritt, '11.
Philip L. Gowen, '12.
Lester A. Whitaker, '13.

ROSTER OF BATTALION.

For 1909—'10.

COMMANDANT.

Lieutenant G. W. Edgerly, Second United States Infantry.

CADET OFFICERS AND NON-COMMISSIONED OFFICERS.

Field and Staff.

Major H. P. Corson.
First Lieut. and Adjt. L. S. Morrison.
Second Lieut. and Q. M. A. H. Brown.
Sergt. Major L. E. Pierce.
Q. M. Sergt. C. H. Robinson.

Band.

First Lieut. T. A. Thorp.
Drum Major F. M. Hoben.

Sergeants.

H. W. Sanborn. B. E. G. Silver.
I. C. Perkins. J. B. Pettengill.

Corporals.

W. J. Avery. C. B. Adams.
A. M. Bennett.

COMPANY A.

Capt. F. O. Chase.
First. Lieut. C. E. Lawrence.
Second Lieut. C. F. Whittemore.
First Sergt. B. F. Proud.

Sergeants.

A. G. Davis. R. C. Morgan.
Alan Leighton. E. H. Chase.

Corporals.

W. E. Rogers. M. P. Bradford.
E. C. Williams. J. A. Manter.
M. S. Watson. J. A. Garland.

Musicians.

G. A. McPheters. C. N. Stetson.

COMPANY B.

Capt. R. A. Neal.
First Lieut. E. E. Stark.
Second Lieut. P. J. Burbeck.
First Sergt. R. E. Carpenter.

Sergeants.

H. R. Tucker. S. DeMeritt.
J. H. Bachelder. K. E. Merrill.

Corporals.

L. S. Foster. P. D. Buckminster.
C. M. J. Bickford. F. S. Davison.
P. L. Gowen. F. F. Hargraves.

Musicians.

P. L. Jones. J. D. Twomey.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Freshmen in the Engineering Courses and Sophomores in the Electrical and Mechanical Engineering Courses are designated by *e* only.

SENIORS.

Name.	Residence.
Anderson, David Wadsworth *a*	*Manchester.*
Bills, Frank Hartwell *e e*	*Reed's Ferry.*
Blake, Alfred Edward *c*	*Nashua.*
Boynton, Dalton *e e*	*Little Boar's Head.*
Bryant, Orville Frank *c*	*Ashland.*
Burns, Lucian Holmes *a*	*Milford.*
Burroughs, Edgar Herbert *m e*	*Sanbornville.*
Burroughs, Wilbur Warren *m e*	*Sanbornville.*
Chase, Fred Odell *m e*	*Warner.*
Converse, Henry Thomas *a*	*Amherst.*
Corliss, Harry Percival *c*	*Wolfeboro.*
Corson, Harry Peach *c*	*Laconia.*
Cotton, Arthur Clyde *a* and *s*	*Alton.*
French, Edward Daniel *e e*	*South Hampton.*
Hefler, George Burpee *m e*	*Jackson.*
Hoyt, Simes Thurston *m e*	*Newington.*
Kidder, Walter Dennis *e e*	*Manchester.*
Lawrence, Cheney Eben *m e*	*Nashua.*
Morrison, Leonard Samuel *a* and *s*	*Penacook.*
Neal, Haldimand Wentworth *e e*	*Dover.*
Neal, Robert Abbott *e e*	*Dover.*
Peel, Charles Edward *c*	*Nashua.*
Perkins, Clement Linwood *c*	*Berwick, Me.*
Read, Harold Clifford *e e*	*Westport.*
Sanborn, Edson Dana *a*	*Fremont.*
Scammon, Raymond Brewster *m e*	*Stratham.*
Swan, Clyde Henry *a* and *s*	*Keene.*
Thorp, Theron Alberto *e e*	*Exeter.*
Wells, Burleigh Ray *e e*	*Somersworth.*
Wright, Charles Shannon *a*	*Portsmouth.*

JUNIORS.

Arozian, Ohannes A. *c*	*Nashua.*
Bennett, Leland Wilson *e e*	*Laconia.*
Brown, Albert Huckins *a*	*Strafford.*
Brown, Charles Owen *c*	*Concord.*
Burbeck, Perry James *e e*	*Haverhill.*
Carpenter, Roy Elbert *e e*	*Medford, Mass.*
Colby, Arthur Samuel *a*	*Tilton.*
DeMeritt, Margaret *a* and *s*	*Durham.*
Drew, Mariette Alice *a* and *s*	*Colebrook.*
Gove, Willis Ansel *m e*	*Laconia.*
Hardy, Harold Elwin *a*	*Hollis.*
Hatch, Olive Estelle *a* and *s*	*Dover.*

Name.	Residence.
Judkins, Henry Forrest *a*	*Kingston.*
Kemp, Charles Willis *a*	*Kingston.*
Little, Webb *a* and *s*	*Campton.*
Morrill, Winfred *e e*	*Pike.*
Nason, Carl Eastman *e e*	*Concord.*
Parker, Edward Gookin *c*	*Portsmouth.*
Parker, William Folger *a* and *s*	*Goffstown.*
Pease, Bret *e e*	*Ashland.*
Philbrook, Henry Brown *a* and *s*	*North Hampton.*
Pierce, Leonard Emerson *e e*	*Worcester, Mass.*
Proud, Benjamin Franklin *a* and *s*	*Manchester.*
Proud, Brenton W. *e e*	*Manchester.*
Scott, Bessie Amanda *a* and *s*	*Tyson, Vt.*
Stark, Eldon Eugene *e e*	*Haverhill.*
Towne, Ernest George *m e*	*Thornton.*
Whittemore, Charles Farnum *c*	*Pembroke.*
Wilkins, Aaron Wallace *m e*	*Amherst.*

SOPHOMORES.

Abbott, Walter S. *a* and *s*	*Manchester.*
Bachelder, John Hutchins *a*	*Concord.*
Bailey, Thomas Craig *e*	*New Boston.*
Berry, George Wesley *a*	*Stratham.*
Bradford, Maurice P. *e*	*Derry.*
Buckminster, Paul D. *c*	*Lee.*
Bunker, Lewis L. H. *e*	*Durham.*
Chamberlain, Walter E. *a*	*Lisbon.*
Chase, Earl H. *e*	*Newport.*
Cole, Florence Viola *a* and *s*	*Dover.*
Crosby, Percy Raymond *e*	*Durham.*
Davis, Arthur G. *a*	*Peterborough.*
Davison, Frank S. *a*	*Durham.*
DeMerritt, Stephen *e*	*Durham.*
Donnelly, Edith G. *a* and *s*	*Dover.*
Drew, Lyle Stevens *c*	*Union.*
Duncan, Raymond C. *e*	*Alton.*
Easterbrook, Ralph Lewis *a*	*Dudley, Mass.*
Foster, Leland S. *e*	*Newport.*
Gowen, Philip Lewis *c*	*Stratham.*
Hargraves, Fred Forest *e*	*Nashua.*
Hayes, Bernice M. *a* and *s*	*Durham.*
Hoben, Frank M. *c*	*Concord.*
Holden, Hiram Chester *c*	*Manchester.*
Knight, Ray Herbert *a*	*Marlborough.*
Leighton, Alan *c*	*Concord.*
Leighton, Arthur John *e*	*Laconia.*
Lowd, Clarence Mortimer *e*	*Durham.*
McPheters, George A. *e*	*Portsmouth.*
Manter, Jerauld A. *a* and *s*	*Manchester.*
Merrill, Karl E. *e*	*Hudson.*
Morgan, Ralph Clifford *e*	*Concord.*
O'Malley, Michael J. *e*	*Somersworth.*
Page, William E. *e*	*Haverhill.*
Parker, Harry Stinson *e*	*Goffstown.*

Name.	Residence.
Perkins, Irving C. *e*	*Kennebunk, Me.*
Pettengill, James B. *e*	*Dover.*
Phillips, Paul Milton *a*	*Nashua.*
Quimby, Waldo Hutchinson *e*	*Concord.*
Reynolds, Clearton Howard *c*	*Middletown, N. Y.*
Roberts, George Filmore *a*	*Alton.*
Robinson, Charles Harrison *c*	*Marlborough.*
Robinson, John E. *c*	*Pembroke.*
Rogers, William Edward *e*	*Durham.*
Sawyer, Arthur H. *a*	*Atkinson.*
Scott, Charles Field *a* and *s*	*Durham.*
Shapleigh, Edward Eugene *e*	*Kittery, Me.*
Skinner, Russell E. *a*	*Colebrook.*
Smart, Guy *a* and *s*	*Rochester.*
Towle, George Wesley *a* and *s*	*Newmarket.*
Tucker, Herbert Ray *a* and *s*	*Concord.*
Tucker, Raymond Hodgdon *c*	*Berlin.*
Tuttle, Harry Benjamin *a*	*Atkinson.*
Waldron, Jeremy Richard *e*	*Farmington.*
Warner, William Pearl *a*	*Plaistow.*
Watson, Miles Standish *a*	*Durham.*
Wood, Arthur G. *e*	*Atkinson.*
Wyman, Horace Chester *a*	*Manchester.*

SPECIAL COURSE.

Avery, Walter J.	*Laconia.*

FRESHMEN.

Adams, Carroll Sidney *e*	*Marlborough.*
Andrew, David Henry *e*	*Newbury.*
Batchelder, C. Howard *a* and *s*	*Taunton, Mass.*
Beach, Robin *e*	*South Natick, Mass.*
Bissell, Don Warren *e*	*Keene.*
Buxton, Ray Pressey *e*	*South Hampton.*
Call, William T. *e*	*Portsmouth.*
Chase, William Hosea *e*	*Newport.*
Christie, Jesse Roy *a*	*New Boston.*
Coburn, Richard Vance *e*	*Manchester.*
Cole, Edward Everett *e*	*Warner.*
Davis, Maurice E. *e*	*Haverhill, Mass.*
Davis, Wesley Elton *e*	*Durham.*
Eastman, Wesley *a*	*Andover.*
Evans, Ivan Marshall *e*	*Laconia.*
Falconer, William Marshall *a*	*Milford.*
Foster, Perley Addison *a*	*Claremont.*
Gale, Philroy Clifton *e*	*Concord.*
Garland, Irving Robinson *a*	*Lakeport.*
Garland, John A. *a*	*Hampstead.*
Garland, Russell White *e*	*Manchester.*
Gillespie, Marion Emma *a* and *s*	*Manchester.*
Goodale, Leonard Anthony *e*	*Amherst.*
Hardy, Orion Henry *e*	*Penacook.*

Name.	Residence.
Hayden, Harry Eugene *a* and *s*	*The Weirs.*
Hilliard, Leon Wilcomb *s*	*Kingston.*
Hodgdon, Winifred *a* and *s*	*Newington.*
Jenness, Augustine Watson *e*	*Dover.*
Jenness, Chester Albert *a*	*Dover.*
Jones, Philip Cowell *e*	*Milton.*
Kelley, Charles George *e*	*Gilmanton.*
Kelley, Leon Jerry *e*	*Colebrook.*
Keyes, Donald Babcock *e*	*Dover.*
Knight, Charles Brigham *e*	*Marlborough.*
Krook, William Cleon *e*	*Wolfeboro.*
Ladd, John Everett *e*	*Raymond.*
Lane, Gilbert Frederic *e*	*Ashburnham, Mass.*
Lang, Gilman Anjavine *e*	*Newmarket.*
Leach, Herbert Chase *a*	*Litchfield.*
Leavitt, Van Earle *a*	*Laconia.*
Locke, Harriet Esther *a* and *s*	*Hampton.*
Lord, Mabel Estella *a* and *s*	*Hopkinton.*
Lovell, Roscoe Ernest *a* and *s*	*Portsmouth.*
McKone, Mary Helen *a* and *s*	*Dover.*
Metze, Wilhelm Hamilton *e*	*Berlin.*
Morgan, John Christie *e*	*Lawrence, Mass.*
Morrison, Arthur Everett *e*	*Durham.*
Neal, Cecil Maurice *e*	*Portsmouth.*
O'Connor, Regina *a* and *s*	*Newmarket.*
Paine, Nathan Dean *e*	*Berlin.*
Peavey, Harold Forrest *e*	*Wolfeboro.*
Pinkham, Valentine *e*	*Dover.*
Place, Walter Roy *e*	*Alton Bay.*
Potter, Arthur Langdon *a*	*Conway.*
Purinton, Helen Fraser *a* and *s*	*Dover.*
Richmond, Alfred Leroy *e*	*Nashua.*
Robinson, Harold Averill *e*	*Elmwood.*
Rogers, Charles Harold *e*	*Exeter.*
Sanborn, Ralph Moses *a*	*Lakeport.*
Sanborn, Smith *e*	*Franklin.*
Smith, Arnold Drake *e*	*North Hampton.*
Stearns, Clifford Dwight *a*	*Hinsdale.*
Stewart, William Finley *a* and *s*	*Brockton, Mass.*
Tarbell, Luther Allen *e*	*Hollis.*
Tubman, Perry Elliott *e*	*Portsmouth.*
Twomey, John *e*	*Penacook.*
Twomey, Thomas James *e*	*Concord.*
Watson, Lyle N. *a*	*Barnstead.*
Whitaker, Lester Ray *a*	*Berwick, Me.*
Whiting, Paul Nathaniel *a*	*Amherst.*
Whittemore, Hollie Lander *a*	*Colebrook.*
Willard, Daniel Phineas Alston *e*	*West Upton, Mass.*
Woodward, Bernard *e*	*Lancaster.*
Work, Clayton Wight *e*	*Exeter.*
Yates, James Black *a*	*Biddeford, Me.*

TWO-YEAR COURSE.

Second Year.

Name.	Residence.
Benner, Andrew Winfred	*Gonic.*
Bickford, Channing Montford J.	*Rye Beach.*
Osgood, Wilfred Albro	*Windham Depot.*
Sanborn, Howard Weaver	*Sanbornton.*
Silver, Bertram Eugene Graham	*Roxbury, Mass.*
Snow, Percy Septimus	*Nashua.*
Stevens, Henry Lee	*Franklin.*
Townsend, Hugh	*Lebanon.*
Williams, Everett Cook	*Worcester, Mass.*
Wiswell, Everett	*Colebrook.*
Woods, Minot Walter	*Bath.*

First Year.

Baptiste, Alfred	*Durham.*
Beloff, Edward H.	*Amesbury, Mass.*
Bennett, Arthur M.	*Nashua.*
Bent, Horace V.	*Annapolis, N. S.*
Bodwell, Joseph Connor	*Sanbornton.*
Brown, Ernest Dwight	*Keene.*
Chadbourn, Aaron Willey	*Durham.*
Dole, Rockwell Merrill	*Proctorsville, Vt.*
Drake, Howard A.	*Salem.*
Eaves, Louis Clifton	*Dublin.*
Ellsworth, Laurence E.	*Peterborough.*
Fletcher, Burleigh Wyllis	*South Lyndeborough.*
Frizzell, Edward Reuben	*Durham.*
Frohock, Earl S.	*Alton.*
Griswold, Atherton	*Hancock.*
Hartshorn, Frank W.	*Meredith.*
Hazen, Allen E.	*Bethlehem.*
Henry, Norman Sargeant	*Hopedale, Mass.*
Hopwood, William R.	*Litchfield.*
Kilburn, Homer E.	*East Andover.*
Littlehale, Walter Eugene	*Durham.*
Mercer, Forrest Clinton	*Peterborough.*
Nevins, William S.	*Derry.*
Nye, Frederick I.	*Durham.*
Robinson, Don Hurlin	*Antrim.*
Robinson, Howard R.	*Littleton.*
Samayoa, Julius	*Guatemala, C. A.*
Sargent, Raymond A.	*Newton.*
Sherburne, Ernest G.	*Pelham.*
Smith, Howard E.	*Candia.*
Stetson, Charles N.	*Durham.*
Stevens, Leon V.	*Canaan.*
Swinerton, Percy R.	*Kingston.*
Wadleigh, Lewis J.	*Tilton.*
Whitcomb, Ernest B.	*Lempster.*
Wiggin, Ralph Minot.	*Bedford.*

TEN-WEEK COURSE.

Name.	Residence.
Chadbourn, Aaron Willey	*West Somerville, Mass.*
Gilman, Daniel	*Exeter.*
Hall, Roy Eugene	*Harrisville.*
Hamm, Lloyd Winston	*Leighton's Corner.*
Kennedy, John Robert	*Lowell, Mass.*
Thompson, Frank Daniel	*Bennington, Vt.*
Waite, Edwin	*Goffstown.*
Walker, Kenneth	*Alton.*

ONE-WEEK COURSE.

Atherton, C. A.	*Newmarket.*
Atwood, D. T.	*Plymouth.*
Atwood, H. G.	*Newfields.*
Avery, J. C.	*Wolfeboro.*
Ayres, P. W.	*Boston, Mass.*
Barber, A. G.	*Reading, Mass.*
Barnard, E. B.	*Riverdale.*
Barnard, G. E.	*Contoocook.*
Bartlett, P. N.	*Meredith.*
Batchelder, D. F.	*Hampton Falls.*
Bennett, G. A.	*Newmarket.*
Bennett, H. W. N., M. D.	*Manchester.*
Blaisdell, W. S.	*East Rochester.*
Boynton, F. W.	*Tilton.*
Brackett, C. H.	*Greenland.*
Brown, A. J.	*Fremont.*
Buckshorn, L. H.	*Concord.*
Burpee, F. A.	*Peterborough.*
Clifford, G. W.	*South Berwick, Me.*
Colburn, E.	*New Boston,*
Colburn, E. S.	*Hathorne.*
Colman, V. M.	*Newington.*
Corey, H. T.	*Manchester.*
Dame, J.	*New Boston.*
Davis, M. C.	*North Conway.*
DeMeritt, Albert	*Durham.*
Dimond, Oliver Carter	*West Concord.*
Doe, Frank E., 2d.	*Durham.*
Doe, Robert	*Dover.*
Durell, F. J.	*Newmarket.*
Elkins, B. W.	*Hampton Falls.*
Flood, T. E.	*Short Falls.*
Garvin, S. R.	*Dover.*
Gould, R. T.	*Contoocook.*
Gowell, J. O.	*Berwick, Me.*
Grey, M. J.	*Everett, Mass.*
Hall, L. M.	*Nashua.*
Hanson, C. E.	*Tilton.*
Hazen, C. D.	*White River, Vt.*
Hazen, C. H.	*Whitefield.*
Hazen, R. E.	*South Weare.*
Horton, Norman	*New Boston.*

Name.	Residence.
Jackson, G. R.	*Conway.*
Littlefield, I. L.	*New London.*
Meserve, Winthrop S.	*Durham.*
Mills, M. L.	*Durham.*
Milne, G. G.	*Monadnock.*
Montgomery, W. L.	*Contoocook.*
Moore, H. D.	*Peterborough.*
O'Conner, S. A.	*Manchester.*
Pattee, C. B.	*Goffstown.*
Piper, F. H.	*Belmont.*
Piper, J. D.	*Northwood Narrows.*
Prime, Miss G. H.	*Boston, Mass.*
Prince, J. R.	*Salisbury.*
Quimby, W. E.	*Deerfield.*
Remick, C. M.	*Portsmouth.*
Roberts, A. K.	*Greenland.*
Roberts, S. P.	*Dover.*
Sanborn, R. R.	*Rochester.*
Sargent, C. H.	*Exeter.*
Shepard, Mark N.	*North Londonderry.*
Silver, C. L.	*Salem.*
Silver, E. L.	*Portsmouth.*
Smith, E. E.	*Candia.*
Smith, H. E.	*Candia.*
Stevens, G. D.	*Epping.*
Swain, D. L.	*Dover.*
Tasker, C. M.	*Conway.*
Tilton, Miss J. S.	*Epsom.*
Towle, P. L.	*Concord.*
Turner, J.	*Salem Depot.*
Turner, W. A.	*Salem Depot.*
Waterhouse, J. H.	*Barrington.*
Watson, A. L.	*Concord.*
Watson, D. A.	*Durham.*
Wilder, Maria	*Tilton.*
Woodbury, S.	*New Boston.*
Yeaton, G. H.	*Dover.*
Young, C. E.	*Dartmouth Grant.*

SUMMARY.

Seniors	30
Juniors	29
Sophomores	58
Freshmen	75
Students in Two-Year Course	47
Students in Ten-Week Course	8
Special Students	1
Students in One-Week Course	80
Total	328
Total (not including *One-Week Course*)	248

REGISTER OF GRADUATES.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. †Present address unknown. Graduates are earnestly requested to inform the registrar of any changes that should be made in this list.

DOCTOR OF SCIENCE.

Ned Dearborn, D. Sc., 1901. Asst. Curator of Birds, Field Museum of Natural History. *Chicago, Ill.*

MASTERS OF SCIENCE.

Albert Conradi, M. S., 1902. B. Sc. (Ag.), O. S. U., 1901. Zoölogist, South Carolina Experiment Station.
Clemson College, S. C.

John Leslie Randall, M. S., 1906. See class of 1905.

William Orrin Robinson, M. S., 1906. See class of 1905.

Lewis Hobart Kenney, M. E., 1906. See class of 1899.

John Dustin Clark, M. S., 1907. See class of 1906.

BACHELORS OF SCIENCE.

1871. 3—

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Retired. *Hampton.*

Charles Henry Sanders, Penacook. Merchant.
4 Elm St., Penacook.

1872. 2—

Edwin Bartlett, Bath. Farmer. *Spearville, Ford Co., Kansas.*

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.

1873. 3—

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M., Dartmouth, 1885; A. M., Stanford, 1900. Principal of High School.
43 McCoy Ave., Campbell, Cal.

Charles Henry Tucker, Plaistow. Woodworker.
24 Highland St., Amesbury Mass.

1874. 2—*1

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey.*

*Henry Abbott Sawyer, North Weare.

1875. 11—*3

Walton Herman Aldrich, M. D., Univ. N. Y. City, 1880; Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis.

Frank Veranus Emerson, Lebanon. Manager Axe Manufacturing Plant. *Masconia Terrace, East Lebanon.*

Charles Webster Hardy, M. D., Mo. Med. Coll., 1881; Marlborough. Physician and Surgeon.
201 So. Main St., Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Poultryman.
R. F. D. 1, Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S., Phila. Dental Coll., 1877, M. D. Dartmouth, 1883; Whitefield.

Eliel Peck, Lebanon, Postmaster.
Kimball, Stearns County, Minn.

†Ira William Ramsey, Walpole.

Orlando Leslie Seward, Keene. Artist. *287 Church St., Keene.*

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett St., Roslindale, Mass.*

1876. 7—

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.
329 West 4th St., Los Angeles, Cal.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.
Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. New York and Foreign Buyer, of Edson Keith & Co.
132 Michigan Ave., Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder of Railroads. *Main St., Wilmington, Vt.*

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Brothers and Wakefield Company. *Box 56, Gardner, Mass.*

1877. 13—*5

Rollin Kirk Adair, Indian Territory. Retail Groceries.
Chelsea, Indian Ter.

*Homer Brooks, M. D., N. Y. Hom. Med. Coll., 1881, Franconia.

John Washington Carson, Mount Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B., Univ. of Iowa, 1880; Keene.

*William Francis Flint, Richmond.

Clinton Camillus Hall, Westmoreland. Secretary Bearshead Farmers. *4 Tyner Ave., Pine Castle, Fla.*

John Goodrich Henry, M. D., Dartmouth, 1880; Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher. *334 Boylston St., Boston, Mass.*

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company. *Board of Trade Building, 131 State St., Boston, Mass.*

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate. *14 River St., Hudson, Mass.*

1878. 3—*1

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. *73 Green St., Leominster, Mass.*

1879. 6—*2

Charles Hardy Bailey, M. D., Dartmouth, 1881. Physician. *39 East Broadway, Gardner, Mass., Station A.*

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *107 Carlton St., Holyoke, Mass.*

*Lucius M. Cragin, Lempster.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Traveling Salesman. *6 Essex St., Concord.*

George Henry Wilkins, M. D., N. Y. Hom. Med. Coll., 1883; Amherst. Physician. *324 Walnut St., Newtonville, Mass.*

1880. 1—

Charles Harvey Hood, Derry. Milk and Creamery Business. *2 Benton Road, Somerville, Mass.*

1881. 14—*1

Edwin Thompson Aldrich, Troy. General Insurance Agent. *Bridgman's Block, 9 Central Sq., Keene.*

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Farmer. *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer and Lumber Dealer.
Main St., Franklin.

Frank Dana Ely, Cavendish, Vt. Electrician with Vermont Marble Company. *6 School St., Proctor, Vt.*

Sanford Eugene Emery, LL. B., Albany Law School, 1886; Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Gardener.
R. F. D. 3, Whitefield.

Frank P. Marston, Hartford, Vt. Real Estate and Insurance.
Savings Bank Bldg., Hudson, Mass.

William Augustus Megrath, M. D., Dartmouth, 1886; Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer.
R. F. D. No. 1, Rochester.

Victor Hugo Stickney, M. D., Dartmouth, 1883; Tyson, Vt. Physician and Surgeon. *101 Sims Ave., Dickinson, N. Dak.*

Samuel Austin Wallace, Ph. G., Boston School of Pharmacy, 1886; West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford, District Superintendent of Schools. *Berlin.*

1882. 9—*2

Harvey Lincoln Boutwell, LL. B., Boston University, 1886; Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce St., Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado.
North Pomfret, Vt.

*Robert Fletcher Burleigh, M. D., Dartmouth, 1887; Franklin.

La Forrest John Carpenter, Surry. Farmer.
R. F. D. No. 1, Shirley, Mass.

Edwin Preston Dewey, Hanover. City Engineer.
237 Olive Ave., Long Beach, Cal.

George Andrew Loveland, LL. B., University of New York, 1886, Norwich, Vt. Section Director United States Weather Bureau.
1130 So. 20th St., Lincoln, Neb.

†John Wright Mason, Hanover.

Harlan Addison Nichols, M. D., Derry. Physician and Surgeon.
Montezuma Copper Co., Nacozari, Sonora, Mexico.

*Frank Elmer Thompson, Stark.

1883. 12—

Elmore Ferdinand Arnold, M. D., University City of New York, 1885; Londonderry, Vt. Physician.
902 Broadway, New York, N. Y.

Frank Landor Bigelow, Proctorsville, Vt. Business. *Rutland, Vt.*
Frederick Stocks Birtwhistle, Troy. Private business. *Troy.*
Noice D. Bristol, Harwinton, Conn. Photographer.
2665 Medary Ave., Columbus, O.
Frederick Plummer Comings, Lee. *Lee.*
Frank Harry Follansbee, Canaan. Railway Postal Clerk.
41 Sharon St., West Medford, Mass.
†Adams Clark French, M. D., D. O., Franklin Falls. Physician.
James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.
Elmer Daniel Kelley, Franklin Falls. Farmer and Business.
445 Central St., Franklin Falls.
Alvah Benjamin Morgan, Canaan. Pharmacist. *Woodstock, Vt.*
William Lincoln Whittier, Deerfield. Foreman of Machine Shop.
121 Rantoul St., Beverly, Mass.
†Charles Minot Woodward, Hanover.

1884. 8—*1

*Ernest Smith Cummings, Lee.
Fred Carlos Davis, South Reading, Vt. Lawyer, Civil Engineer and Farmer. *123 South St., Springfield, Vt.*
Sylvester Miller Foster, Riverhead, N. Y.
Hokanum Farm, Westport, Conn.
Herbert Harvey Kimball, M. S., Columbian University, 1900, Hopkinton. Professor of Meteorology, U. S. Weather Bureau.
1819 Monroe St., Washington, D. C.
Moses Bisbee Mann, Benton. Deputy Surveyor of Customs.
Custom House, Boston, Mass.
George Milton Moore, Plymouth, Vt. Real estate, Insurance, and Independent Timber Cruiser. *112 Main St., Ludlow, Vt.*
Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail.
587-593 Washington St., Dorchester, Mass.
Edwin Chapin Thompson, Lee. In charge Local Office, Weather Bureau. *Observation Bldg., LaCrosse, Wis.*

1885. 11—

George Ellsworth Adams, Weston, Vt. Merchant. *Vernal, Utah.*
Ruel Seabury Alden, Lyme. Superintendent Vermont Marble Company's Farms. *Proctor, Vt.*
Walter Eugene Angier, C. E., Dartmouth, 1887; West Swanzey. Civil Engineer. *Office, 1750 Monadnock Block, Chicago, Ill.*
Edward Alonzo Bailey, West Swanzey. Chair Maker.
55 Pine St., Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and Mercantile Fire Insurance Company, 76 William Street, New York, N. Y. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

Frank Jay Emerson, Epping. Civil Service, U. S. Govt. *Box 312, Portsmouth.*

Allen Hazen, Wilder, Vt. Consulting Civil Engineer. *103 Park Ave., Cor. 41st St., New York, N. Y.*

George Mayo Mullins, Londonderry. Attorney-at-Law. *727 Symes Bldg., 16th and Champa Sts., Denver, Colo.*

Albert Henry Wood, Lebanon. Grain Merchant. *26 Pleasant St., Framingham, Mass.*

1886. 6—

Frank Albert Davis, M. B., M. D., Boston University School of Medicine, 1897, 1898; South Lee. Physician. *Hotel Buckminster, 645 Beacon St., Boston, Mass.*

James Ellsworth Harvey, Surry. Photographer. *51 North Main St., Concord.*

Belezar Stoianoff Ruevsky, Tirnovo, Bulgaria. Maître au Gymnase de garçon du Governement, Tirnovo, Bulgaria. *Termoro, Bulgaria.*

Madison Templeton Thurber, M. D., Dartmouth, 1890, Webster. Physician. *85 Savin Hill Ave., Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law. Trustee New Hampshire College. *142 Main St., Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department. *3407 Holmead Place, N. W., Washington, D. C.*

1887. 5—

William Sprague Currier, Norwich, Vt. Local Forecaster United States Weather Bureau. *1631 Nicholas Bldg., Toledo, Ohio.*

Arthur Woodbury Hardy, C. E., Dartmouth, 1889; Hopkinton. Manager Western Sprinkler Risk Association. *240 La Salle St., Chicago, Ill.*

George Albert Sanborn, Rochester. Salesman. *34 Pine St., Rochester.*

Hiram Newton Savage, C. E., Dartmouth; White River Junction, Vt. Civil Engineer. *Helena, Mont.*

Bion Leland Waldron, Strafford. Official in charge United States Weather Bureau. *Government Bldg., Hannibal, Mo.*

1888. 9—*1

*Melvin Burnside Carr, North Haverhill.
†Herbert Grant Davis, South Lee.
Edwin Chandler Gerrish, Webster. Assistant Paymaster and Long Distance Farmer. *66 Broadway, Lowell, Mass.*
†William Nelson Hazen, C. E., Dartmouth, 1890.
Edward David O'Gara, Hanover. Farmer. *Hanover.*
George Elmer Porter, M. D., Dartmouth, 1892; Hartford, Vt. Physician and Chemist. *36 Beach St., Hartford, Conn.*
George Jonathan Sargent, Canterbury. Retired. *Canterbury.*
John Warren Smith, M. S., 1900; Grafton. Section Director United States Weather Bureau.
16 East Broad St., Columbus, Ohio.
George Elwin Walker, Littleton. Farmer. *Franconia.*

1889. 7—*1.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Hopkinton.*
†Linwood Carroll Gillis.
*Louis Jerome Hutchinson, Norwich, Vt.
John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America. *Lyndonville, Vt.*
Charles Walter Earl Scott, Winchester. Refrigerating Engineer.
Ramona Heights, San Diego, Cal.
David Elmer Stone, Hartford, Vt. Grain Merchant.
Framingham Center, Mass.
Fred Washburne, West Springfield. Foreman of Foundry Department, Sargent and Company.
56 Carmel St., New Haven, Conn.

1890. 4—

John Young Jewett, C. E., Dartmouth, 1895; Gilford. Cement Expert, United States Reclamation Service.
408 Commonwealth Bldg., Denver, Colo.
†Joseph Franklin Preston, Hanover.
Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*
Clarence Ira Slack, Norwich, Vt. Cashier.
51 North Market St., Boston, Mass.

1891. 3—

Ernest Gowell Cole, Hampton. Postmaster and Merchant.
Hampton.

Russell Marden Everett, Chester. Patent Lawyer and Solicitor.
788 Broad St., Newark, N. J.

Edward Payson Stone, Canaan Center. Farmer. *Orford.*

1892. 4—

Percey Lovejoy Barker, C. E., Dartmouth, 1894; Milford. Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. R.
Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. General Manager and Chemist, Pennsylvania Primo Feed Co., Inc., Harrisburg, Penn.
720 N. 16th St., Harrisburg, Penn.

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

Edward Monroe Stone, C. E., Dartmouth, 1894; Marlborough. Architect and Engineer. *49 Pearl St., Hartford, Conn.*

1893. 6—

Wilton Everett Britton, Ph. D., Yale, 1903; Keene. State Entomologist. *296 McKinley Ave., New Haven, Conn.*

Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E., Cornell, 1895; Hanover. Professor of Electrical Engineering, New Hampshire College.
Durham.

Charles Lincoln Hubbard, M. E., 1895; Fitzwilliam. Consulting Engineer and Literary Work.
283 Central St., Auburndale, Mass.

Orrin Moses James, Northwood. Civil Engineer State Highway Department. *Northwood Narrows.*

Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan.
1008 Oakland Ave., Ann Arbor, Mich.

1894. 3—

Bert Sargent Brown, Hanover. Farmer. *Hollis.*

Fred Willis Gunn, Keene. Machinist.
25 Franklin St., Boston, Mass.

Frederic William Howe, Hollis. Professor of Chemistry, Food and Dietetics, State Normal School, Framingham, Mass., Scientific Director Walker Gordon Laboratory Company, and Director of Food Laboratory, Boston Floating Hospital.
9 Elm St., Framingham, Mass.

1895. 4—

Frank Stanley Adams, Gilsum. In office Vermont Farm Machine Company. *35 Atkinson St., Bellows Falls, Vt.*

Frank Clifton Britton, Keene. In charge Cost-Accounting Department, Sullivan Machinery Company.
7 Prospect St., Claremont.

Henry Elmer Hill, Plainfield, Vt. Arizona Lumber Co.
Plainfield, Vt.

Charles Arthur Trow, Mont Vernon. Chief Engineer, California Midland Railroad Company.
40 1-2 Third St., Marysville, Cal.

1896. 1—

Lewis Harris Kittredge, Keene. President the Peerless Motor Car Company. *Overlook Road, East, Cleveland, Ohio.*

1897. 17—*1

Harlan Winfred Barney, Grafton. With Amoskeag Manufacturing Company. *112 Myrtle St., Manchester.*

Carrie Augustus Bartlett, Lee. Principal Lowell Avenue School, Haverhill, Mass. *Route 1, Newmarket*

Mary Blaisdell Bartlett (Mrs. I. A. Colby), Epping.
112 Fountain Ave., Ellwood City, Penn.

Walter French Buck, Manchester. Teacher.
129 W. Elm St., Brockton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Beverly High School.
28 Abbott St., Beverly, Mass.

Irving Lyford Dennett. Steam Engineer.
Box 158, Edgewater, N. J.

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc., 1900, Columbia. Supt. Massachusetts Agricultural College Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Descriptive Geometry, Sibley College, Cornell University.
400 Stewart Ave., Ithaca, N. Y.

†John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company.
P. O. Box 105, Lowell, Mass.

†Woodruff Mason, Stamford, Conn.

Roscoe Hart Shaw, Milton. Dairy Expert, United States Department of Agriculture. *University of Missouri, Columbia, Mo.*

Charles William Vickery, Dover. License Clerk in Office of District Clerk, 2d Division. *Nome City, Alaska.*

†Delbert Amos Wheeler, South Ashburnham, Mass.

Everett Sidney Whittemore, Colebrook. Carpenter and Builder.
North Conway.

1898. 18—*2.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, (Mrs. Alexander McRae), Lee. *R. F. D., 5, Dover.*

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham. *Somerville, Mass.*

Burton Albert Corbett, Colebrook. Seed Potato Specialist and Breeder of Holstein-Friesian Cattle. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *R. F. D., Newmarket.*

James Alfred Foord, Walpole. Professor of Farm Administration and Acting Head of the Division of Agriculture, Massachusetts Agricultural College. *Amherst, Mass.*

John Williams Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Chemist Bureau of Chemistry, United States Department of Agriculture. *1110 16th St., N. W., Washington, D. C.*

Edward Henry Hancock, Belmont. Mechanical Engineer. *494 Rutherford Ave., Boston, Mass.*

Mabel Lucy Hayes, Durham. Teacher in Dover High School. *Durham.*

*Tomokichi Hirokawa, B. S., Massachusetts Institute of Technology, Imabari, Japan.

Harry Clinton Mathes, Newmarket. Inspector Penn., New York and Long Island Railroad Company. *195 10th St., Long Island City, N. Y.*

Herbert Fisher Moore, M. E., Cornell, 1899; M. M. E., Cornell, 1903; Penacook. Special Investigator, Illinois Engineering Experiment Station. *710 West Hill St., Champaign, Ill.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company. *93 Blackstone St., Woonsocket, R. I.*

Harry Putnam Richardson, Milford. With Southern Pacific Railroad. *560 10th St., Oakland, Cal.*

†Fred Dexter Sanborn, Ashland.

Fred Webster Smith, Franklin Falls. Representative of George D. Mayo Machine Company. *Sixth and Arch Sts., Laconia.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding. *Berwick, Maine.*

1899. 12—

Henry Clark Baker, South Yarmouth, Mass. Engineer, Sales Department, Crocker-Wheeler Company. *Ampere, N. J.*

Harry Everett Barnard, Nashua. State Food and Drug Commissioner, *State House, Indianapolis, Ind.*

Harrison Edward Clement, Nashua. Mining Engineer. Member of firm Clement and Strange, Engineers and Contractors. *626 Dooley Block, Salt Lake City, Utah.*

Irving Atwell Colby, Exeter. Designer with Shelby Steel Tube Company. *112 Fountain Ave., Ellwood City, Penn.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *90 Stark Ave., Dover.*

Frederick Libbey Horton, Dover. Engineering Department, General Electric Company. *35 Lovers' Leap Ave., Lynn, Mass.*

William Elmer Hunt, Nashua. Captain Twenty-Second United States Infantry. *Nome, Alaska.*

Lewis Hobart Kenney, M. E., Pownal Me. Draftsman-in-charge, Dept. of Steam Engineering, U. S. Navy Yard. *U. S. Navy Yard, Phila., Penn.*

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum. *710 West Hill St., Champaign, Ill.*

Arthur Zebulon Norcross, Rindge. Farmer. *R. D., Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist Boston and Maine Motive Power Department. *Concord.*

Etta Lillian Simpson, Durham. Principal Dartmouth, Mass., High School. *795 Columbia Road, Dorchester, Mass.*

1900. 12—

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Company. *404 North 4th St., St. Louis, Mo.*

David Burns Bartlett, J. B. and J. M., Boston University Law School, 1907; Manchester. Attorney. *53 State St., Boston, Mass.*

Frances Burnham (Mrs. Robert McA. Keown), Durham. *206 No. Brooks St., Madison, Wis.*

Blanche Mary Foye, Durham. Teacher of French and German in High School. *Concord, Mass.*

Charles Elliot Page Mathes. Manager Contract Department, Little Rock Railway and Electric Company. *115 West 4th St., Little Rock, Ark.*

Edward Emil Nelson, Nashua. With American Smelting and Refining Co. *Garfield, Utah.*

Alvena Pettee (Mrs. Edward E. Nelson), Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903; Durham. *Garfield, Utah.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *5 East Ave., Ithaca, N. Y.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Ave., Lynn, Mass.*

Charles Edwin Stillings, Somersworth. Power House Operator. With Interborough Rapid Transit Company, New York City. *74th St. and East River, New York, N. Y.*

John Ernest Wilson, Hollis. Electrical Contractor. *217 1-2 West 1st St., Los Angeles, Cal.*

Robert Morrill Wright, Hill. Law Student in Office of Streeter and Hollis. *Concord.*

1901. 13—

Henry Harold Calderwood, Nashua. Production Department, General Electric Company. *428 Central St., Saugus, Mass.*

Charles Henry Courser, Warner. In charge of steam operation for the Edison Electric Illuminating Company, 360 Pearl St., Brooklyn, N. Y. *388 E. Second St., Brooklyn, N. Y.*

Alice Emerson Dorr (Mrs. Lewis Cilley), Dover. *30 Fisher St., Dover.*

Harry Willis Evans, Portsmouth. Assistant Engineer, Detroit River Tunnel Company. *15 Alexandrine Ave., Detroit, Mich.*

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Private business. *15 Lexington St., Dover.*

Charles Almon Hunt, Nashua. First Lieutenant, Seventh U. S. Infantry. *Manila, P. I.*

Edwin Price Jewett, Lakeport. Farmer. *Laconia.*

Robert McArdle Keown, Pomona, Fla. Assistant Professor in Machine Design, University of Wisconsin. *206 No. Brooks St., Madison, Wis.*

Elmer Eugene Lyon, Wentworth. Principal of High and Graded Schools, *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Company. *121 Duane St., New York, N. Y.*

Edson Albert Straw. With the A. K. Co., Box Department. *Ashland.*

1902. 9—

Mary Doe (Mrs. Charles H. Ayres), Rollinsford. *21 W. 31st St., New York, N. Y.*

†Edwin W. Gilmartin, Nashua. *16 Blossom St., Nashua.*

John C. Kendall, Peterborough. Professor of Dairy Husbandry, Kansas State Agricultural College. *Manhattan, Kan.*

Harry M. Lee, Moultonborough. Foreman Estate of F. A. Kennedy. *Windsor, Vt.*

Abiel A. Livermore, Wilton. Rose Grower. *290 Salem St., Wakefield, Mass.*

George E. Merrill, B. Ag., Cornell University, 1903; Newburyport, Mass. Editor of Agricultural Text books, International Correspondence School. *Scranton, Pa.*

Charles A. Payne, Portsmouth. Technical Assistant Heating—Engineering Department, General Electric Company. *320 McClellan St., Schenectady, N. Y.*

Eugene P. Runlett, Durham. With Williams and Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Chemist, Food and Drug Inspection, Bureau of Chemistry, United States Department of Agriculture. *825 Allison Street, Washington, D. C.*

1903. 10—

Harry David Batchelor, West Upton, Mass. Chief Chemist, By-Product Coke Department of Carnegie Steel Works and Furnaces, Sharon, Penn. *Box 491, Sharon, Penn.*

Edgar Forest Bickford, Rochester. Electrical Engineer with Boston and Northern Street Railway Company and Old Colony Street Railway Company. *84 State St., Boston, Mass.*

Frank Ray Brown, Durham. Instructor in Shopwork, New Hampshire College. *Durham.*

Everett William Burbeck, Haverhill. Mining and Civil Engineer with Oliver Iron Mining Company. *Box 370, Eveleth, Minn.*

†Everett Garfield Davis, Newmarket. *158 Massachusetts Ave., Cambridge, Mass.*

†Albert Noah Otis, Durham.

Ralph Harvey Rollins, East Concord. Engineer United States Reclamation Service. *Yuma, Ariz.*

Morris Archer Stewart, Dover. Chemist, Bryan, Marsh Company. *Central Falls, R. I.*

David Albert Watson, Durham. Farming. *R. F. D. No. 1, Durham.*

Melvin Johnson White, M. A., Univ. of Wisconsin, 1907; Farmington. Instructor of American History in High School. *208 No. Brooks St., Madison, Wis.*

1904. 11—

Leander Ashton, Pittsfield. Gardener.
256 Kent St., Brookline, Mass.

Walter Allen Barker, Pittsfield. Building Inspector for Standard Oil Company. *580 Chelsea St., East Boston, Mass.*

Edgar Charles Bickford, Durham. *Durham.*

Percy Anderson Campbell, Litchfield. Professor of Animal Industry, University of Maine. *Orono, Maine.*

Carroll Winfred Farr, North Weare. Dairy Farmer and Breeder of Ayrshire Cattle. *North Weare.*

Joseph Ezra Goodrich, New Durham. Master of Ridge School.
Chapin Cottage, Washington, Conn.

George Herbert Hill, La Crosse, Wis. Draughtsman at Office of Superintendent of Motive Power, Chicago, Burlington and Quincy Railroad. *C. B. and Q. R. R., Aurora, Ill.*

Thomas Jefferson Laton, Nashua. Instructor in Mechanical Drawing, New Hampshire College. *Box 155, Durham.*

Raymond Louis Lunt, Dover. Electrical Engineer.
6641 Kimball Ave., Chicago, Ill.

Arthur Ronello Merrill, North Bridgton, Me. Dairy Farmer.
Norfolk St., Holliston, Mass.

†Samuel Ambrose Richardson, Charlestown.

1905. 18—*2

John Henry Chesley, Rockingham. Turbine Testing Department, General Electric Company. *77 Mall St., West Lynn, Mass.*

Cleon Orestes Dodge, Sunapee. Chemist, Bureau of Chemistry, Department of Agriculture. *1329 11th St., Washington, D. C.*

Silas Bryden Hayden, South Natick, Mass. Draftsman.
550 La Salle Ave., Chicago, Ill.

Harry Linwood Hayes, Exeter. Testing Department, General Electric Company. *Schenectady, N. Y.*

Warren Chauncey Hayes, Durham. Instructor, Lyndon Institute.
Lyndonville, Vt.

Fred Harvey Heath, Warner. Instructor in Massachusetts Institute of Technology. *Boston, Mass.*

*Harold Nims Knight, Marlborough.

Joseph Wesley Moreton, Medford, Mass. Electrical Engineer, Niagara, Lockport and Ontario Power Company.
Y. M. C. A. Bldg., Buffalo, N. Y.

Orlo Dudley Mudgett, Gilmanton. Assistant Superintendent Belfast Gas and Electric Company. *92 Main St., Belfast, Me.*

Horace James Pettee, Durham. Structural Draftsman, Illinois Steel Company. *7121 Central St., Rogers Park, Chicago, Ill.*

Arthur Mahlon Pike, Dover. Construction Foreman, General Electric Company. *84 State St., Schenectady, N. Y.*

Fred Silver Putney, M. S., Penn. State College, 1908, Hopkinton. Assistant to the Dean and Director, Agricultural College and Experiment Station. *Columbia, Mo.*

John Leslie Randall, M. S., Lee. Superintendent Nature Study and School Gardening. *707-11 Bijou Bldg., Pittsburg, Penn.*

William Orrin Robinson, M. S., Marlborough. Physical Chemist, Bureau of Soils, Department of Agriculture. *Washington, D. C.*

*Harry Union Russell, West Derry.

Elmer Seth Savage, Lancaster. Instructor in Animal Husbandry, Cornell University. *606 No. Aurora St., Ithaca, N. Y.*

Castine Caroline Swanson, Cambridge, Mass. Social Worker, Woman's Educational and Industrial Union, Boston, Mass. *193 Westminster Ave., Arlington, Mass.*

Frank Alvin Tinkham, Grafton. Farming. *E. Grafton.*

1906. 18—

Samuel Taylor Adams, Pittsfield. Private Business. *Pittsfield.*

Stuart Kendrick Barnes, Walpole. Chemist, American Glue Company. *Peabody, Mass.*

Charles S. Batchelder, South Hampton. Assistant Engineer under Foster, Towle. *Fort Shaw, Mont.*

Willis Cassius Campbell, West Windham. Teacher. *14 Lincoln Ave., New Rochelle, N. Y.*

John Dustin Clark, Nashua. Associate Professor of Chemistry, University of New Mexico. *Albuquerque, N. Mex.*

Clarence Elbert Clement, Derry. Dairyman. *239 Washington St., Newton, Mass.*

†Ernest Luther Converse, Amherst.

†Neil Starr Franklin, Bernardston, Mass.

Carl Tilson Fuller, Nashua. Chemical Engineer, General Electric Company Lamp Works. *Harrison, N. J.*

William Safford Gooch, Exeter. Engineering Department, New England Telegraph and Telephone Company. *164 High St., Boston, Mass.*

Ralph Edward Gowen, Stratham. Meteorologist. *947 Calle Cuyo, Buenos Ayres, Argentine Republic.*

Edwin Davis Hardy, Nashua. Erecting Engineer with Westinghouse Machine Company. *The Winston, San Francisco, Cal.*

Cyrus Fremont Jenness, Gonic. Market Gardening. *Waban, Newton Centre, Mass.*

Allen Montague Johnson, Nashua. Salesman, Westinghouse Electric and Manufacturing Company. *131 State St., Boston, Mass.*

Wallace Fuller Purrington, South Yarmouth, Mass. Assistant Chemist, Food and Drug Inspection. *818 Church St., Nashville, Tenn.*

Edwin Jay Roberts, Laconia. *Laconia.*

Roy Vance Swain, Barrington. Teacher of Mathematics in Coe's Northwood Academy. *Northwood Centre.*

Charles Leo Tuttle, Exeter. Engineering Department, New England Telegraph and Telephone Company. *164 High St., Boston, Mass.*

1907. 14—

Leon Dexter Batchelor, West Upton, Mass. Instructor in Horticulture, Cornell University. *804 E. Seneca St., Ithaca, N. Y.*

Philip Ray Berry, Alton. *R. F. D. 2, Alton.*

Andrew Broggini, Concord. Calculator, Turbine Testing Department, General Electric Company. *77 Mall St., West Lynn, Mass.*

Harold Hurst Dickey, Manchester. Manager of St. Paul Marine Company. *209 Coleman Bldg., Seattle, Wash.*

Carl Austin Dodge, New Boston. Assistant Chemist, Welsbach Light Company. *Gloucester City, N. J.*

Harry Edward Ingham, Nashua. Instructor in Shopwork, New Hampshire College. *Box 155, Durham.*

Frank Davis Lane, Manchester. Instructor, Manor School, Stamford, Conn. *79 Walnut St., Manchester.*

Ralph Albion Littlefield, Portsmouth. Dairy Farming. *N. Reading, Mass.*

Bernard C. Noyes, Lisbon. Massachusetts State Forest Service. *Room 7, State House, Boston, Mass.*

John Glen Powers, Concord. *76 No. Spring St., Concord.*

Frank Wiggin Randall, Portsmouth. Commercial Department, Ellenville Electric Company. *Ellenville, N. Y.*

Ellice Storrs Townsend (Mrs. C. D. Hazen, Jr.), Lebanon. *White River, Vt.*

Lucia Soule Watson, Durham. Teacher of Science in High School. *Fort Fairfield, Me.*

Arthur Jason Woodward, Lancaster. Testing Department, General Electric Company. *8 Lenox Road, Schenectady, N. Y.*

1908. 30—

Waldo Lawrence Adams, Townsend, Mass. Assistant Chemist, New Hampshire Experiment Station. *Durham.*

Arthur Hosea Barton, Newport. General Electric Company.
71 Mall St., West Lynn, Mass.

†Arthur Milliken Batchelder, Suncook.

Minot Giles Buss, Wilton. Teacher Berlin High School. *Berlin.*

Lawrence Andrew Carlisle, Exeter. *18 Oak St., Exeter.*

James Dennis Cash, Massabesic. Forestry.
Dartmouth College Grant, Wentworth Location, N. H.

Mary Abbie Chesley, Durham. Teacher. *Thetford, Vt.*

Francis Clough, Contoocook. General Electric Company.
77 Mall St., West Lynn, Mass.

Charles Francis Cone, Nashua. Electrical Testing.
71 Mall St., West Lynn, Mass.

Merton Maine Cory, Nashua. General Electric Company.
Revere Beach, Mass.

John Timothy Croghan, Concord. Chief Engineer, Concord Electric Company. *15 Capitol St., Concord.*

Katharine DeMerritt, Durham. Studying in France.

Walter Woods Evans, East Kingston. Instructor in Chemistry, University of Toronto.
Chemical Dept., Univ. of Toronto, Toronto, Ont.

Oren Lovell Farwell, Chesham. White River Dairy Association.
White River, Vt.

Harry Fifield French, Plymouth. Assistant Chemist, State Laboratory of Hygiene, Concord. *16 South St., Concord.*

Stanley Fiske Hill, Nashua. Tool Designer.
11 Harrison Ave., Beverly, Mass.

Merritt Chase Huse, Concord. Illuminating Engineer. Engineering Department, Holophane Company. *Newark, N. J.*

William R. Kirkpatrick, Nashua. Gypsy Moth Inspector, U. S. Govt. *Box 77, Nashua.*

John Joseph O'Connor, Portsmouth. Superintendent of River Works at General Electric Company.
71 Mall St., West Lynn, Mass.

John Caleb Page, Dover. Principal of High School.
Belvidere, N. J.

George Arthur Perley, Goffstown. Assistant Instructor in Electro Chemistry, Cornell University.
302 Mitchell St., Ithaca, N. Y.

Sarah Elizabeth Pettee, Durham. Dietitian, American Hospital.
City of Mexico, Mex.

James Henry Priest, Manchester. Testing Department, General Electric Company. *613 Chapel St., Schenectady, N. Y.*

Moses Herman Sanborn, Fremont. *Fremont.*

Dean Fred Smalley, Walpole. General Electric Company. *Lynn, Mass.*

Carl Brown Tarbell, Milton. Surveying. *No. Rochester.*

Ray Emery Wadleigh, Kensington. Illuminating Engineer, Southern Electric Company. *423 N. Calvert St., Baltimore, Md.*

†George Lyman Waite, Dunbarton.

Harold Duncan Walker, Kittery, Me. Draughtsman, U. S. Navy Yard. *Portsmouth.*

Francis Ward Woodman, W. Derry. Assistant in Agricultural Chemistry at University of Missouri. *417 Witt St., Columbia, Mo.*

1909. 33—

Laurence Day Ackerman, Bristol. Assistant Chemist of By-Product Coke Department, Carnegie Steel Company. *Box 491, Sharon, Penn.*

Henry Edward Batchelder, Exeter. Teacher. *Ellis Ave., Chicago, Ill.*

Edna Olive Brown, Rye Beach. *Rye Beach.*

William Smith Campbell, Litchfield. Switchboard Operator, Seattle Electric Company. *Y. M. C. A., Seattle, Wash.*

Lucy Abby Drew, Colebrook. Teacher in High School. *Colebrook.*

Perry Foss Ellsworth, Meredith. With Meredith Telephone Company. *Meredith.*

John Ironside Falconer, Milford. *Milford.*

Ernest Roslyn Fellows, Exeter. Testing Department, General Electric Company. *Schenectady, N. Y.*

Otis Dana Goodwin, Hollis. *Hollis.*

Charles William Kelley, Barnstead. Traveling Engineer.

Carl Duncan Kennedy, Concord. Assistant Chemist, Hatch Experiment Station. *14 Pleasant St., Amherst, Mass.*

Wilfred F. Langelier, Nashua. *9 Oak St., Nashua.*

Bernard Ayers Lougee, Pittsfield. Westinghouse Electric and Manufacturing Company. *Turtle Creek, Penn.*

Frank E. McKone, Dover. General Electric Company, West Lynn, Mass. *145 North Common St., West Lynn, Mass.*

Maurice Davis Merrill, Andover. *Andover.*

John Edward Parker, Goffstown. Farming. *Goffstown.*

Albert Peaslee, Gonic. Teacher Manual Training. *Lowell, Mass.*

Herbert Samuel Pike, Lisbon. B. S. Sturtevant Company. *Hyde Park, Mass.*

Lester Albert Pratt, Alton Bay. Assistant in Chemistry, New Hampshire College. *Durham.*

Harold Wallace Quimby, Northwood Narrows.
Northwood Narrows.

Charles Sidney Richardson, Cornish Centre. *Cornish Centre.*

George Jackman Sargent, Concord. Post graduate, Cornell University. *Ithaca, N. Y.*

Lee Lawrence Smalley, Walpole. *Terrace Farm, Walpole.*

Ernest Morton Stevens, Andover. Instructor in Mathematics, Rockland Military Academy. *West Lebanon.*

Iva Dorothy Stokes, Gossville. *Gossville.*

Harry Storrs Townsend, Lebanon. Farming. *Lebanon.*

John Paul Trickey, Rochester. Chemical Department, University of Toronto. *Toronto, Ont.*

Chester Snell Wendell, Dover. Graduate Student, Harvard University. *Cambridge, Mass.*

Stephen Neal Wentworth, Rochester. Assistant Chemist, American Glue Company. *Peabody, Mass.*

Howard Erwin Wilder, Amesbury, Mass. Surveyor (Northern Pacific Railroad). *1024 W. Augusta Ave., Spokane, Wash.*

Harold Hartshorn Wilkins, Amherst. Employed by Frank Hartshorn in lumber business. *Amherst.*

Chester Loring Wood, Dudley, Mass. Landscape Gardener.
Box 253, Webster, Mass.

Arthur Page Woods, Bath. Post graduate, Cornell University.
Ithaca, N. Y.

TWO-YEAR COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis, 1897.

Charles Wesley Martin, Durham, 1898. Assistant in Manufacturing, Sacramento Gas, Electric and Railway Company.
3018 Orange Ave., Oak Park, Sacramento, Cal.

George Henry Wheeler, Temple, 1898. Farmer. *Temple.*

Fred Joseph Durell, Newmarket, 1900. Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme, 1900. Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis, 1900. Farmer. *Hollis.*

Albert Cate Knowles, Epsom, 1900. Farmer and Seed Agent. With Dunlap & Sons, Nashua. *Epsom.*

†Robert Hale Pearson, Webster, 1900.

Charles Nicklin Blodgett, Hebron, 1901. Farmer of New Hampshire State Sanatorium. *Warren Summit.*

Harry Douglass Verder, Hollis, 1901. Stock Raiser. *Hollis.*

Rufus Leonard Cushman, North Adams, Mass. 1901. Gardener.
No. Auburn, Mass.

†George R. Brew, Lowell, Mass., 1902.

Carroll W. Farr, North Weare, 1902. B. S. New Hampshire College, 1904.

George F. Hills, Hollis, 1902. Farmer. *Hollis.*

Walter E. Quimby, Deerfield, 1902. Farm Superintendent. *Leavitt's Hill.*

Walter P. Tenney, Chester, 1902. Homedale Farm. *Chester.*

†Thornton N. Weeks, Greenland, 1902.

†Robert E. Whittier, Deerfield, 1902.

Edward C. Wilson, Wilton, 1902. Traveling Salesman for Swift and Company. *201-11 Jackson St., Seattle, Wash.*

Harry Garfield Brierley, Dover, 1903. Farmer. *Stratham.*

†George Grover Manning, Boston, Mass., 1903.

James Henry Nixon, East Brentwood, 1903. Superintendent Boulder Brook Farm. *R. F. D., Center Harbor.*

Roscoe Franklin Swain, South Hampton, 1903. Dairy Farmer. *Amesbury, Mass.*

Erland Graves Batchelder, Wilton, 1904. Dairy Farmer, Poultryman and Fruit Grower. *Wilton.*

Wesley Pillsbury Flint, Newburyport, Mass., 1904. Office State Entomologist. *Urbana, Ill.*

Henry Marston Shurbert, Northwood Ridge, 1904. Gardener W. E. Barrett Estate. *West Newton, Mass.*

Arthur G. Dunn, Harrisville, 1905. Farmer. *Medfield, Mass.*

Henry N. Gowing, Dublin, 1905. Poultryman and Fruit Grower. *Dublin.*

Alfred Walter Clough, 1906. Farmer. *Greenland.*

Oliver Carter Dimond, West Concord, 1906. Farmer. *R. F. D. No. 12, West Concord.*

Ralph Wayne Forristall, Alstead, 1906. Farmer. *Alstead.*

Stanley Hargreaves, 1906. Assistant, Forest Park. *Springfield, Mass.*

Robert S. Sawyer, 1906. Farmer. *Walpole.*

†David Raymond Batchelder, Wilton, 1907.

Alfred Elwin Blood, East Sullivan, 1907. Farmer. *R. F. D. 2, Gardner, Mass.*

Abram Lawrence Dean, Taunton, Mass., 1907. Student at College of Agriculture, Cornell University. *404 College Ave., Ithaca, N. Y.*

Simes Frink, Newington, 1907. Farmer. *Newington.*

William Patrick Hickey, Bow, 1907. General Labor Foreman Carnegie Steel Company. *Newark, N. J.*

Frederick Henry Charles Kampe, East Alstead, 1907. Agriculturist. *East Alstead.*

Lee Augustus Parker, Keene, 1907. Gardener.
195 Eastern Ave., Keene.

†Lewis Elwell Sanborn, Ashland, 1907.

Ernest Eugene Tucker, Durham, 1907. Head Gardener Private Estate. *Monadnock.*

Charles Shannon Wright, Portsmouth, 1907. Student New Hampshire College. *Durham.*

George A. Holmes, Langdon, 1908. *Langdon.*

Guy Leavitt, Sanbornton, 1908. *R. F. D. 1, Laconia.*

Harold Thom Littlefield, Salem Depot, 1908. *Salem Depot.*

Luther D. Colburn, New Boston, 1909. Farmer. *New Boston.*

Claudian F. Hill, Wakefield, Mass., 1909. Grower and Jobber of Popping Corn, Wakefield, N. H. *Woodman.*

Leslie C. Martin, 1909, Chicopee, Mass., 1909. Farmer.
27 Lemuel Ave., Chicopee, Mass.

Iru M. Waite, Goffstown, 1909. *Goffstown.*

SUMMARY.

Graduates, Bachelors of Science, 1871–1909	373
Graduates, Two Year Course	50
Agriculturists	50
Business Pursuits	61
Chemists	24
Civil, Mechanical, Electrical and Mining Engineers	81
Graduate Students	4
Lawyers	7
Ministers	1
Physicians	13
Retired	5
Teachers	47
Unknown	50
United States Army	2
United States Weather Bureau	6
Dead	22

ALPHABETICAL LIST OF GRADUATES.

Ackerman, L. D., 1909.
Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adams, W. A., 1908.
Adams, S. T., 1906.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, W. H., 1875.
Aldrich, H. C., 1876.
Aldrich, E. T., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barnes, S. K., 1906.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Barton, A. H., 1908.
Batchelder, A. M., 1908.
Batchelder, C. S., 1906.
Batchelder, D. R. (2-year), 1907.
Batchelder, E. G. (2-year), 1904.
Batchelder, H. E., 1909.
Batchelor, H. D., 1903.
Batchelor, L. D., 1907.
Berry, P. R., 1907.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2-year), 1901.
Blood, A. E. (2-year), 1907.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2-year), 1902.
Brierley, H. G. (2-year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
Broggini, A., 1907.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, Miss E. O., 1909.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
*Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Buss, M. G., 1908.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Campbell, W. C., 1906.
Campbell, W. S., 1909.
Carlisle, L. A., 1908.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Cash, J. D., 1908.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.

*Dead.

Chesley, J. H., 1905.
Chesley, Miss M. A., 1908.
*Chubert, C. O., 1877.
Clark, J. D.; M. S., 1907.
Clement, C. E., 1906.
Clement, H. E., 1899.
Clough, A. W. (2-year), 1906
Clough, F., 1908.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Colburn, L. D. (2 year), 1909.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Cone, C. F., 1908.
Conradi, Albert; M. S., 1902.
Converse, E. L., 1906.
Corbett, B. A., 1898.
Cory, M. M., 1908.
Courser, C. H., 1901.
*Cragin, L. M., 1879.
Croghan, J. T., 1908.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Cushman, R. L. (2-year), 1901.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dean, A. L. (2-year), 1907.
Dearborn, N.; D. Sci., 1901.
DeMerritt, Miss K., 1908.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Dimond, O. C. (2-year), 1906.
Dickey, H. H., 1907.
Dodge, C. A., 1907.
Dodge, C. O., 1905.
Doe, Miss M., 1902.
Dorr, Miss A. E., 1901.
Drew, Miss L. A., 1909.
Dunn, A. G. (2-year), 1905.
Durell, F. J. (2-year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2-year), 1900.
Ellsworth, P. F., 1909.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Evans, W. W., 1908.
Everett, R. M., 1891.
Falconer, J. I., 1909.
Farr, C. W., 1904; (2-year), 1902.
Farwell, H. G., 1901.
Farwell, O. L., 1908.
Fellows, E. R., 1909.
*Flint, W. F., 1877.
Flint, W. P. (2-year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Forristall, R. W. (2-year), 1906.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
Franklin, N. S., 1906.
French, A. C., 1883.
French, H. F., 1908.
Frink, S.(2-year), 1907
Fuller, C. T., 1906.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Gooch, W. S., 1906.
Goodrich, J. E., 1904.
Goodwin, O. D., 1909.
Gowen, Miss E. G., 1901.

*Dead.

Gowen, R. E., 1906.
Gowing, H. N. (2-year), 1905.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, E. D., 1906.
Hardy, M. F., 1874.
Hargreaves, S. (2-year), 1906.
Harvey, J. E., 1886.
Hayden, S. B., 1905.
Hayden, W. D. F., 1899.
Hayes, H. L., 1905.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hayes, W. C., 1905.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Heath, F. H., 1905.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hickey, W. P. (2-year), 1907.
Hill, C. F. (2-year), 1909.
Hill, G. H., 1904.
Hill, H. E., 1895.
Hill, S. F., 1908.
Hills, E. A. (2-year), 1900.
Hills, G. F. (2-year), 1902.
*Hirokawa, T., 1898.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
Holmes, G. A. (2-year), 1908.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
Huse, M. C., 1908.
*Hutchinson, L. J., 1889.
Ingham, H. E., 1907.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jenness, C. F., 1906.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Johnson, A. M., 1906.
Kampe, F. H. C. (2-year), 1907.
Kelley, C. W., 1909,
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kennedy, C. D., 1909.
Kenney, L. H. ; M. E., 1906.
Keown, R. McA., 1901.
*Kilburn, E., 1878.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
Kirkpatrick, W. R., 1908.
Kittredge, L. H., 1896.
*Knight, H. N., 1905.
Knowles, A. C. (2-year), 1900.
Lane, F. D., 1907.
Langelier, W. F., 1909.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Leavitt, Guy (2-year), 1908.
Lee, H. M., 1902.
Littlefield, H. T. (2-year), 1908.
Littlefield, R. A., 1907.
Livermore, A. A., 1902.
Lougee, B. A., 1909.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
*McGregor, J. L., 1875.
McKone, F. E., 1909.
Mann, M. B., 1884.
Manning, G. G. (2-year), 1903.
Mark, Miss G. A., 1899.
Marston, F. P., 1881.
Martin, C. W. (2-year), 1898.

*Dead.

Martin, L. C. (2-year), 1909.
Mason, J. W., 1882.
Mason, W., 1897.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, A. R., 1904.
Merrill, G. E., 1902.
Merrill, M. D., 1909.
Moore, G. M., 1884.
Moore, H. F., 1898.
Moreton, J. W., 1905.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mudgett, O. D., 1905.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2-year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
Noyes, B. C., 1907.
O'Connor, J. J., 1908.
O'Gara, E. D., 1888.
Otis, A. N., 1903.
Page, J. C., 1908.
Parker, D. D., 1876.
Parker, F. C., 1879.
Parker, J. E., 1909.
Parker, L. A. (2-year), 1907.
Payne, C. A., 1902.
Pearson, R. H. (2-year), 1900.
Peaslee, A., 1909.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Perley. G. A., 1908.
Pettee, Miss S., 1908.
Pettee, H. J., 1905.
Pettee, Miss A., 1900.
Pike, A. M., 1905.
Pike, H. S., 1909.
Porter, G. E., 1888.
Powers, J. G., 1907.
Pratt, L. A., 1909.
Preston, J. F., 1890.
Priest, J. H., 1908.
Purrington, W. F., 1906.
Putney, F. S., 1905.
Putney, H. N., 1899.
Quimby, H. W., 1909.
Quimby, W. E. (2-year), 1902.
Ramsey, I. W., 1875.
Randall, F. W., 1907.
Randall, J. L. ; M. S., 1906.
Record, C. E., 1878.
Richardson, C. S., 1909.
Richardson, H. P., 1898.
Richardson, S. A., 1904.
Roberts, E. J., 1906.
Robertson, Miss M. L., 1900.
Robinson, W. O.; M. S., 1906.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
*Russell, H. U., 1905.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanborn, L. E. (2-year), 1907.
Sanborn, M. H., 1908.
Sanders, C. H., 1871.
Sargent, G. Jackman, 1909.
Sargent, G. Jonathan, 1888.
Savage, E. S., 1905.
Savage, H. N., 1887.
*Sawyer, H. A., 1874.
Sawyer, R. S. (2-year), 1906.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Shurbert, H. M. (2-year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smalley, D. F., 1908.

*Dead.

Smalley, L. L., 1909.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stevens, E. M., 1909.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stokes, Miss I. D., 1909.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2-year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2-year), 1903.
Swain, R. V., 1906.
Swanson, Miss C. C., 1905.
Tarbell, C. B., 1908.
Tenney, W. P. (2-year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. T., 1886.
Tinkham, F. A., 1905.
Tolles, B. D., 1898.
Townsend, H. S., 1909.
Townsend, Miss E. S,. 1907.
Trickey, J. P., 1909.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Tucker, E. E. (2-year), 1907.
Tuttle, C. L., 1906.
Verder, H. D. (2-year), 1901.
Vickery, C. W., 1897.
Wadleigh, R. E., 1908.
Waite, G. L., 1908.
Waite, I. M. (2-year), 1909.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Walker, H. D., 1908.
Wallace, S. A., 1881.
Washburne, F., 1889.
Wason, E. H., 1886.
Watson, D. A., 1903.
Watson, Miss L. S., 1907.
Weeks, T. N. (2-year), 1902.
Wendell, C. S., 1909.
Wentworth, S. N., 1909.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2-year), 1898.
Whitcher, G. H., 1881.
White, F. A., 1872.
White, M. J., 1903.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2-year), 1902.
Whittier, W. L., 1883.
Wilder, H. E., 1909.
Wilkins, G. H., 1879.
Wilkins, H. H., 1909.
Willard, E. M., 1875.
Wilson, E. C. (2-year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, C. L., 1909.
Wood, G. P., 1886.
Woodman, F. W., 1908.
Woods, A. P., 1909.
Woodward, A. J., 1907.
Woodward, C. M., 1883.
Wright, C. S. (2-year), 1907.
Wright, R. M., 1900.

*Dead.

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